

Improving Spectator Injury Data

Project Report

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Foreword

Football has been the most popular sport played in the UK since the middle of the 19th century. Nowadays, the Premier League draws many football fans to watch their favourite teams play live by attending football matches. In the 2018/19 football season, some Premier League clubs averaged attendance figures of up to 75,000 spectators per match, often filling their stadiums to capacity. The safety of spectators during matches is a priority to both football clubs and authorities, such as the Sports Grounds Safety Authority (SGSA). Although the ultimate aim of both football clubs and football authorities is to prevent spectators from being injured at matches in the first place, in the unlikely event that a spectator is injured at a football ground, regulations require that medical provisions are available so that they can be treated. The SGSA currently requires all the football clubs it regulates to send data detailing injuries sustained by spectators at their grounds at the end of every football season. However, there are currently concerns with the quality of injury data that is being received from football clubs.

Commissioned by the SGSA, researchers from the Lloyd's Register Foundation Transport Risk Management Centre (LRF TRMC) have conducted an independent analysis of the processes by which spectator injury data is currently collected at Premier League clubs, in order to provide recommendations on how the quality of this data can be improved. This report details the findings of the project and provides a list of recommendations, which, if implemented, would ensure better quality injury data is collected by football clubs.



Background

The SGSA, previously known as the Football Licensing Authority (FLA), is the UK Government's advisor on safety at sports grounds. The SGSA has two parallel roles, acting as both a regulator and an advisor. It issues licenses to Premier League and English Football League grounds that allow them to host football matches and oversees local authorities' safety certification of these grounds. It further provides safety advice and support to other sports governing bodies and clubs, both in the UK and internationally.

The SGSA sets safety standards through publication of its best practice guidance document, the 'Guide to Safety at Sports Grounds' (widely known as the 'Green Guide'). The sixth edition of the Green Guide was released in 2018. The Guide includes a section detailing medical and first aid provision requirements for sports grounds, stating that ground managers should ensure that during events an appropriate level of medical care should be provided for all persons present at the ground. Athletes, players and event officials' medical arrangements are not covered by these regulations, instead they are determined by the relevant sport's governing body. In the UK, for instance, the Football Association (FA) stipulates regulatory requirements for player and event official's medical care at football matches.

The Green Guide states that sports grounds should ensure that medical and first aid provisions are appropriate to both the ground, the events being held there and the spectator profile. First aid and other medical services are generally provided at stadiums by doctors, registered paramedics and nurses and first aiders. The minimum numbers of these personnel required at an event is determined through calculations detailed in the Green Guide which are based on the sports grounds' capacity. The Guide also states that during an event, records should be kept of:

- the numbers of all medical personnel present at the event; and
- all first aid treatments and medical diagnosis provided during the event, including:
 - the onwards destination of the patient (for example home or hospital);
 - the type of injury sustained or medical problem encountered;
 - the location of where the injury was sustained, or where the medical problem was reported;
 - what the person was doing at the time of the incident; and
 - whether the injury/incident was the result of a pre-existing medical condition.

These records should be made available to ground management and local authorities for inspection if required. In addition to the records kept above, ground management is also responsible for reporting health and safety incidents, under reporting of injuries, diseases and dangerous occurrences regulations (RIDDOR).

At the end of every football season, the SGSA asks the sports grounds it licenses to provide details of the number of spectators treated for injuries sustained during football matches. The SGSA supplies clubs with a spreadsheet to record the information required about these incidents. This information request is discretionary and not a requirement of the safety certification process. Data on spectator injuries has been collected from clubs since the



1995/96 football season by the SGSA's predecessor body, the FLA. Since 1997 summaries of the data have been published in the FLA or SGSA's annual reports. Since the 2011/12 football season, the SGSA has also made publicly available on its website summary data on spectator injuries. The summary details the total number of injuries that have occurred and provides a rudimentary breakdown of the causes of the recorded injuries.

However, due to a lack of understanding about how spectator injury data is collected at clubs and on the basis of previous data quality reviews, serious questions have been raised about how applicable this data source is for providing insights into the safety of spectators at football grounds. It is important for all stakeholders of spectator injury data to understand the insights spectator injury data can provide - and what it cannot provide. Comprehending how this data is collected and processed at each football club and then aggregated and analysed by the SGSA is crucial to evaluating the usefulness of this data as a source of evidence for future policy reform proposals and for the continued management of safety risks at football grounds.



Executive Summary

This report reflects the findings of the 'Improving Spectator Injury Data' project carried out by the Lloyd's Register Foundation Transport Risk Management Centre (LRF TRMC), Imperial College London, during the first half of 2019. The project was jointly funded by the SGSA and the Premier League. A working group consisting of six Premier League clubs and representatives of the SGSA, Premier League, English Football League, along with the LRF TRMC was formed to steer the project.

The aim of this study was to outline current spectator injury data collection practices in Premier League clubs. Recommendations for future improvements to data collection processes are then provided, in order to improve the quality of the data being collected. Various data sources were utilised in this project to investigate data collection processes and produce the recommendations. Academic literature and industry practice documents related to data quality and medical provision at large scale events were reviewed to identify state-of-the-art practise in this area. Then, field studies were conducted on match days at each of the six Premier League clubs, to observe data collection processes and interview members of staff and volunteers involved with data collection. Other stakeholders of spectator injury data that were not interviewed during the field studies were then also identified and interviewed to obtain their viewpoints.

The main findings of this project are:

- Spectator injury data can be considered to be a type of healthcare data and thus, its quality can be assessed through the evaluation of data quality dimensions identified as relevant to healthcare data in academic literature.
- Medical provisions at large scale events are the subject of numerous medical journal articles. These report on medical treatment rates, injury and illness presentations and appropriate resourcing at these events.
- Health and safety incident data in the aviation industry, on RIDDOR reports and school safety incident records are reported to the relevant authorities directly through online submission forms.
- Each Premier League football club investigated in this study was found to have developed a unique combination of internal (such as event doctors) and external (such as St John Ambulance, Local NHS Service Trusts) medical service providers to fulfil the medical and first aid requirements set out in the Green Guide.
- Injuries account for less than half of all medical presentations treated during football matches at Premier League clubs. Illnesses and exacerbations of pre-existing conditions of both spectators and members of staff are also frequently treated.
- Data collected at football clubs related to medical provision during events can be divided into four categories: patient report forms, audit data, resource deployment logs and other kinds of less relevant data.
- Audit data, collected using either 'individual' or 'aggregated' audit data collection forms, is the origin of the spectator injury data sent to the SGSA by each football club.



- The content and layout of the audit forms collecting information about spectator injuries differ significantly among football clubs.
- In the majority of cases, audit forms are completed by first aiders, rather than other medical practitioners such as crowd doctors or paramedics present at the ground. In general, no training is given to first aiders on how to correctly complete the audit forms they are required to use.
- At the end of a football match audit forms are collected and the data recorded and aggregated by clubs before eventually being processed into the format required and then sent to the SGSA.
- Stakeholders of spectator injury data include: the SGSA; the English Football League (EFL), FA and Premier League; football clubs themselves; local councils (including safety advisory groups); NHS ambulance service providers; St John Ambulance; private medical service providers; crowd doctors and nurses; and football supporters.
- Stakeholders' main opinions on spectator injury data were that all medical incidents should be reported, not only injuries, as this would make it more useful for all stakeholders' purposes. The existing data collection form and submission process should be redesigned so that it becomes more appropriate for the collection of this type of data.

The following recommendations, justified based on the project findings, are suggested to improve the quality of spectator injury data collected by the SGSA at English and Welsh football clubs in the future:

1. The SGSA should develop strategic objectives detailing its reasoning behind collecting, using and analysing medical incident data.
2. The SGSA should collect data detailing all medical incidents that occur at sports grounds, not only injuries.
3. Some questions should be removed entirely from the SGSA's current spectator injury data collection form; answer categories for other questions should be revised; and certain additional questions should be added in order to collect further relevant information on medical incidents. These changes include:
 - Removal of the question 'Was there persistent standing in this location?'
 - Revision of the data categories for the following data fields: 'Incident location', 'Patient Age', 'Part of Body Affected', 'Cause of Injury', 'Presentation of Injury' and 'Onwards destination of patient'.
 - Addition of data fields to collect information on: the resources required to treat a patient; details of the person completing the form; and any corresponding patient report form reference numbers.
4. Medical service providers at clubs should all use the same audit-type form to collect medical incident data during events.
5. An online submission portal should be created through which clubs can submit their medical incident data to the SGSA.



1 Introduction

The Sports Grounds Safety Authority (SGSA) has been collecting data on spectator injuries that occur in the 94 English and Welsh¹ football clubs that they license for a number of years. This data is compiled by the SGSA at the end of every football season. Until the start of the 2016/17 season, football clubs sent spectator injury data to the SGSA either through the post, or by email. In the absence of a unified format, each club supplied the data in their own distinct format, which provided information about the incidents to differing levels of detail.

In September 2018 the Lloyd's Register Foundation Transport Risk Management Centre (LRF TRMC), based at Imperial College London conducted an independent analysis of spectator injury data collected by the SGSA from the 2010/11 season to the 2016/17 season. Their in-house data quality assessment framework was applied to assess the quality of the data – in particular the accuracy, consistency, timeliness and completeness of the data. Findings indicated that different data was available for each football club primarily due to the inconsistent format in which the data was being submitted by the clubs. As a result, a significant effort would have been required by the SGSA to process and analyse this data. Furthermore, most clubs supplied the SGSA with detailed, contextually relevant information about the reported injuries. However, the majority of this information was not being used by the SGSA in their analysis, as the SGSA only used the data to calculate the total number of injuries, hospital admissions and spectator injury ratios for all of their licensed clubs. A very simple breakdown of the 'causes' of these injuries for each football season was also being produced.

The 2018 study also revealed that there was inadequate information describing the manner in which the spectator injury data had been collected at each club. In particular, the person responsible for collecting and compiling the injury data and the time delay it took to report the injuries after they occurred was missing. This information is essential for complete data analysis and is an indicator of the quality of the data.

At the time of this independent analysis, the SGSA was aware that there were issues with the quality of the spectator injury data they received from clubs. At the beginning of the 2017/18 season, in an attempt to rectify some of these issues, a new spectator injury data collection form was developed. The SGSA recommended that all clubs make use of this form from that season onwards and therefore, the data received from each club would then be consistent. The form was provided to clubs in the form of an electronic spreadsheet (see Appendix B), consisting of 12 data fields including:

- the part of the body injured,
- the cause of the injury,
- the age group of the patient,
- the time period in which the injury occurred,
- whether the patient was taken to hospital,
- the location of the injury and

¹ The Sports Ground Safety Authority Act 2011 extends to England and Wales only.



- whether there was persistent standing in the location of the injury.

Injuries required to be recorded on this form included injuries sustained by spectators, staff, players and other personnel present at a club's ground. The revised form does address, at least to some extent, the issue of the variability in the injury data collected at the clubs. Nevertheless, further improvements are required in order to ensure accurate and complete data and move towards ensuring data is collected in a state-of-the-art manner.

Following on from the September 2018 quality assessment, the LRF TRMC was commissioned jointly by the SGSA and the Premier League to examine how to further improve the quality of spectator injury data collected by the SGSA. The results of this analysis are presented in the present report. A working group was formed consisting of representatives from the SGSA, the Premier League, the LRF TRMC, the EFL and six partner clubs from the Premier League (2018/19 season) to aid with steering the project. Three meetings of the working group occurred between February and July 2019 before the project was completed. Input from the working group was received at key points in the project. The progress of the study was presented at two meetings during which the members of the working group commented and provided further direction for the work. At the initial meeting, the scope of the study and methodology were agreed upon by all members of the working group. The engagement of the stakeholders proved vital to the successful completion of the project.



2 Methodology

A three-stage methodology was designed to conduct this project. First, documentation relevant to the project purpose was reviewed. This included government, industry and academic literature. A state-of-the-art picture of 'good quality' incident data was obtained by focusing the review on three topics in particular:

- Incident data and database quality, for safety and healthcare data specifically;
- Spectator medical data and medical provisions at sports stadiums; and
- Workplace health and safety and other types of safety and healthcare data collected different industry sectors.

Secondly, field studies were conducted by the LRF TRMC who visited the six Premier League partner clubs on match days, in order to understand how spectator injury data was actually collected at football clubs. The six Premier League clubs involved in this project were:

- Brighton & Hove Albion FC (Acronym - BHAFC)
- Cardiff City FC (CCFC)
- Everton FC (EFC)
- Manchester City FC (MCFC)
- Manchester United FC (MUFC)
- Newcastle United FC (NUFC)

During these visits, the team observed relevant members of staff and volunteers at the clubs, taking notes on how the data was collected. Staff members and volunteers were also informally interviewed by questioning them about injury data collection processes, to supplement the information collected from observing these processes. Notes taken during the visits were sent to the clubs for approval before being analysed. The clubs were able to add additional information to these notes regarding their spectator injury data collection processes if they thought it useful for the project. The revised notes were used to identify stakeholders involved with medical provision, the different types of medical data collected and the processes by which the data is collected at each club. Follow-up questions were sent to the club's representatives to supplement the findings of the field studies.

A visit to Wembley Stadium was also arranged through the SGSA contacting the Medical Commander at the stadium. Permission was obtained to include findings from Wembley in this project. The owner of Wembley stadium, the FA, was not formally involved with this project and did not attend the working group meetings.

A mapping process was also conducted to identify the key stakeholders of spectator injury data. Representatives from each of the stakeholder groups that had not already been spoken with during the match visits were interviewed to ascertain their views on the collection and uses of spectator injury data. These semi-structured interviews were either conducted in person or by telephone.



3 Results

The findings of the project are presented under a number of different headings.

3.1 Incident Data and Database Quality

The academic literature available in this field declares that datasets, and database quality, is typically assessed through the consideration of various data quality metrics, also known as 'quality dimensions'. Data quality is a multidimensional concept, consisting of both subjective and objective metrics. According to a seminal paper on data quality (Pipino, Lee, Wang, Lowell Yang Lee, & Yang, 2002), the quality of any dataset can be ascertained through the assessment of 15 different quality dimensions: accessibility or availability of the data, appropriateness of the amount of data, believability, completeness, consistency of representation, ease of manipulation, free-of-error, interpretability, objectivity, relevancy, reputation, security, timeliness, understandability and value-added. Of these, those dimensions that can be quantified are usually presented as a particular functional form, i.e. a simple ratio, a min/max operation or a weighted average (Pipino et al., 2002).

The data quality assessment framework developed by the LRF TRMC elaborated on these dimensions and is applicable to safety occurrence data. This framework was applied to transportation safety occurrence databases (Dupuy, 2012). The framework is applicable to any dataset that consisting of incident records.

Under the assumption that spectator injuries are considered to be incident data, the spectator injury data received by the SGSA was assessed for its quality using the framework, i.e. to assess the completeness, consistency and relevance of the reported information. This analysis confirmed that the data being provided to the SGSA was inconsistent between the clubs, a significant amount of irrelevant information was being supplied and no information was being supplied by the clubs detailing how this data was collected.

Due to the nature of the spectator injury data, this data can also be considered as a type of healthcare, or medical data. A literature review of the quality assessment of such medical data revealed that a series of dimensions elicited from the proposed list of Pipino et al., (2002) were used. For example, St-Maurice & Burns (2016) suggested the use of the following four quality dimensions for analysis of primary healthcare data: timeliness, completeness, accuracy and usefulness. The UK's National Health Service (the NHS) recommended the assessment of patient safety incident data through considering the following six quality dimensions: relevancy, accuracy, timeliness, accessibility, comparability and coherence (NHS Improvement, 2017). The World Health Organization (WHO) has also developed its own data quality assessment framework, with the aim to use this framework to provide a holistic and comprehensive review of the quality of data collected from different healthcare facilities located within the same country (WHO, 2017). The framework comprises of the following four quality dimensions: completeness, internal consistency, external comparisons and external consistency of population data.

It is evident that the studies in healthcare considered some of the data quality dimensions originally proposed by Pipino et al., (2002) whilst the LRF TRMC framework provided a more detailed list of dimensions enabling a more holistic assessment of the quality of the data. Hence, the LRF TRMC framework was appropriately employed to analyse spectator injury data in the 2018 project.



3.2 Spectator Medical Provisions and Medical Data

A number of articles relevant to spectator injury data were found to have been published by academic researchers. These papers generally fell under the wider topic of medical provision at mass gathering events, rather than simply spectator injury studies. The papers reviewed for this project were predominantly published in medical journals.

A detailed review of 20th century academic literature published on the topic of mass gathering medical care can be found in Milsten, Maguire, Bissell, & Seaman (2002). This review is useful as it provides a list of event factors that may affect the number of patients requiring treatment at an event and also details patterns in injury presentations at mass gathering events. For this project, although this study is useful, more recent journal articles published in this field are more likely to offer information on state-of-the-art practices of mass gathering medical care, so a further literature search was undertaken. This search was limited to sports crowd medical studies that took place in the UK within the last 20 years, as these were determined to be the most applicable for this project. Eight journal articles were found that satisfied these search criteria. An overview of these articles is presented in Table 1, which also details the data sources utilised in each of these studies.

Table 1 Medical Journal Articles Reviewed

Article (Authors)	Location of Study	Medical Data Source
An analysis of use of crowd medical services at an English football league club (Leary et al., 2008)	The Den (Millwall FC)	Audit form (developed by study authors)
Crowd medical services in the English Football League: remodelling the team for the 21st century using a realist approach (Leary et al., 2017)	The Den (Millwall FC)	Audit form (developed by study authors)
Trends in demand for Acute Medical Care at Two Football Clubs over an Eighteen-Year Period (Heinink, Fogarty, & Wiles, 2014)	Sixfields Stadium (Northampton Town FC) & Leicester City Stadium (Leicester City FC)	Audit data (collected in note form by study authors)
The Villa Park experience: crowd consultations at an English Premiership football stadium, season 2007-8 (Bhangu, Agar, Pickard, & Leary, 2010)	Villa Park (Aston Villa FC)	Clinical notes (St John Ambulance Patient Report Forms)
An analysis of consultations with the crowd doctors at Glasgow Celtic football club, season 1999/00 (Crawford, Donnelly, Gordon, Maccallum, MacDonald, McNeill, Mulhearn, Tilston, 2001)	Celtic Park (Glasgow Celtic FC)	Audit form (developed by study authors)
Validation of a Modified Medical Resource Model for Mass Gatherings (Smith, Tuffin, Stratton, & Wallis, 2013)	Old Trafford (Manchester United FC) & Ellis Park Stadium, Johannesburg, South Africa	Clinical notes
A summer of cricket: prospective evaluation of all contacts with medical services at Edgbaston cricket ground during summer 2009 (Lyons, Jackson, & Bhangu, 2011)	Edgbaston Cricket Ground	Audit form (developed by study authors)
A practical approach to Events Medicine Provision (A. Smith et al., 2016)	N/A	N/A



The majority of the studies presented in Table 1 took place at football grounds. One study was conducted at a cricket ground and in one study half of the data collected was sourced from a stadium predominantly used for rugby matches (Ellis Park Stadium). All of the articles reported the provision of medical services at sports grounds as either raw numbers of medical incidents recorded, or as medical usage rates (MUR) in patients per ten thousand (PPTT) spectators. Medical data used in the studies was collected either from clinical notes (such as St John Ambulance patient report forms, or doctor's notes), or using specifically designed audit forms. The audit forms developed by the study authors collected data such as patient demographic information (age, sex, hometown), the presentation of the injury or illness, the cause of the injury or illness, the treatment given, the onwards destination of the patient, the category of the patient (spectator or staff) and the medical service provider giving the treatment (first aider, paramedic, doctor etc).

These studies had a variety of aims, with a few simply examining the rates and presentation patterns of spectator medical incidents at sports stadiums. Some studies assessed workload models for medical service providers, while one paper aimed to present an overview of the skills required of doctors to enable them to provide effective medical care at mass gathering events. A common observation made in the articles was that spectator injuries only represent a small proportion of all medical treatments given at sports grounds. In fact, medical treatment is more commonly sought for exacerbations of pre-existing conditions, or illnesses. Additionally, staff members represent a notable proportion of patients in addition to spectators.

3.3 Data Collection in Other Industry Sectors

Documentation relating to the methods used to collect safety, incident and healthcare data in other industry sectors were also examined. Documents and webpages reviewed detailed the following:

- Reporting of Injuries, Diseases and Dangerous Occurrences (RIDDOR)
- School medical records
- Other types of health and safety reporting
- Transportation incident databases

RIDDOR reporting is a legal requirement in the UK (Health and Safety Executive, 2013b). Employers must report and keep records of work-related deaths and serious injuries, diagnosed cases of industrial diseases and any other 'dangerous occurrences'. RIDDOR incidents are reported to the Health and Safety Executive (HSE) through an online form available on the HSE website. The form is presented as a mixture of free text entry boxes, drop-down lists and tick boxes (Health and Safety Executive, 2019a). Successful completion of the form enables the following details of reportable incidents to be captured: personal details of the person affected (including their full name, occupation or visitor status and type of injury), the location of the incident, a brief description of the circumstances relating to the incident, the date of occurrence and the method through which the incident was first reported. Injury statistics compiled from reported RIDDOR incidents are published by the HSE online every few years. The HSE website also details where inconsistencies can be observed in RIDDOR data, as data fields may have been modified over the years (Health and Safety Executive, 2019b).



RIDDOR reporting also applies to employees in schools. In these cases, 'dangerous occurrences' may also include acts of physical violence against employees (Health and Safety Executive, 2013a). Some local authorities have created online portals for their schools to submit incident reports. For example, Ealing Council has an online school incident reporting system (Ealing Council, 2019). The online incident form is able to capture the following details about RIDDOR incidents occurring in schools: the details of the reporter, a summary of the incident (date, time, school name and incident type, such as accident/near miss, location), if equipment or property damage occurred, if witnesses were present and the name and reference number of a paramedic attending to the incident. This form is comprised of a mixture of free text entry boxes, drop-down lists and tick-boxes. The data collected on these incidents is used by the council to ensure it meets its legal obligations of RIDDOR reporting and to ensure incidents reported are investigated to minimise the likelihood of reoccurrence (Ealing Council, 2016).

Transport regulators also collect safety and incident data, with aviation sector in particular being an exemplar for both data collection and analysis reporting. As an example, UK pilots are governed by EU regulations stating that it is mandatory they report information on safety 'occurrences' to the UK's aviation regulator, the UK Civil Aviation Authority (CAA) (European Union Aviation Safety Agency, 2015). These 'occurrences' are defined as safety-related events which could endanger an aircraft, its occupants or any other person (European Union Aviation Safety Agency, 2019). Mandatory occurrence reports (MORs) detailing these safety incidents should be submitted to the UK's aviation regulator either online via a web interface or by uploading a pdf form onto the online portal. The web interface and pdf form collect information on the safety incidents such as: the location, a narrative description of the incident, the severity of the incident (both in terms of human injuries and aircraft damage), aircraft information, flight details and optional information about the weather conditions, flight rules and airspace class. The web interface also allows for attachments to be uploaded. The layout of the web interface incorporates free-text entry boxes, drop-down lists and tick boxes. There is also the option to review the information previously entered before final submission. The pdf version of the form collects exactly the same information as the online web interface. When opened as a pdf file it is completed by filling out free-text entry boxes, tick boxes and drop-down lists. Therefore, a computer is also required to complete the pdf form – it cannot be printed and then completed by hand. Safety incidents reported via the web interface or pdf form that have occurred within the UK airspace are analysed by the CAA, which publishes on its website the number of MORs reported annually. The CAA's website also makes publicly available more detailed information on bird strikes and laser incidents reported to have occurred within the UK every year.

The most eminent commonality of the incident datasets amongst the three sectors of health and safety in the workplace, health and safety in educational environments and safety in aviation is that data can be submitted to the stakeholder that oversees the reporting of these incidents, through an online form. This significantly speeds up the data collection process and hence, coordinating reporting procedures can be beneficial for all stakeholders. Another commonality seen in the design of the online forms is that they all consist of a mixture of free text entry boxes, drop-down lists and tick boxes so that they can collect diverse information on incidents in the most appropriate manner. For example, drop-down lists can be used for questions where a pre-defined list of answers is available, whereas unpredictable answers would require free-text entry boxes. Furthermore, all the forms collect details about reported incidents such as the timing and location of the incident, details of the reporter and other information specific to the exact incident recorded. Collection of this data enables a



comprehensive analysis of data quality to be conducted. As evident in the aviation sector, detailed reports are also produced by organisations collecting the data periodically.

3.4 Medical Resources Present at Football Clubs

The Green Guide states that medical and first aid services at sports grounds are typically provided by a multi-disciplinary team consisting of event doctors, paramedics, registered nurses, first aiders and other healthcare professionals. The minimum number of each of these individuals required at an event is determined by the ground's capacity. However, these recommendations only apply to medical services provided for spectators, staff and other related persons at the ground. Medical requirements for players and event officials are determined separately by the sports' governing body. The study detailed in this report only focuses on medical provision for spectators, staff and other related persons at football clubs. It can be assumed that medical provisions are in place for players and event officials at clubs, in addition to the medical provisions detailed in this report.

Despite requiring the individuals constituting the medical and first aid teams at each club to be registered with an appropriate professional body², the Green Guide does not specify which medical and first aid service providers football clubs should use. Thus, each club has developed their own medical team consisting of a combination of directly employed and externally contracted organisations that work together to provide medical services during events.

The seven clubs (six Premier League clubs and Wembley Stadium) involved with this study were each found to have developed their own unique combination of external medical service providers and in-house resources to fulfil their medical service provision obligations. The clubs diverged significantly in both the organisations they charged with providing medical services and the command structure utilised amongst the medical team. Figure 1 shows the potential organisations and associated medical professionals or volunteers that could be involved with medical service provision at any one of the clubs investigated in this project. Individuals that are employed directly by the club and are involved with medical service provisions are shown on the left side of the diagram, with medical service professionals originating from external organisations are shown on the right. Increasing specificities of different job roles are displayed at different hierarchical levels in the diagram. Above each rectangle indicating specific job roles is a number illustrating how many of these individuals could be present at a club's ground during a match. For instance, '0' indicates that this role is not essential for medical service provisions and therefore was only found at certain clubs, such as the 'Medical Safety Officer'. An undetermined number of individuals given the same job role at the ground is indicated on the diagram by an asterisk '*', for instance next to the 'Steward' rectangle. This notation illustrates that many stewards will be present at a ground during a game, but the number of stewards may be different at each ground and could also differ at the same ground at different matches.

² For instance, the General Medical Council, Nursing and Midwifery Council, or Health Care and Professions Council.

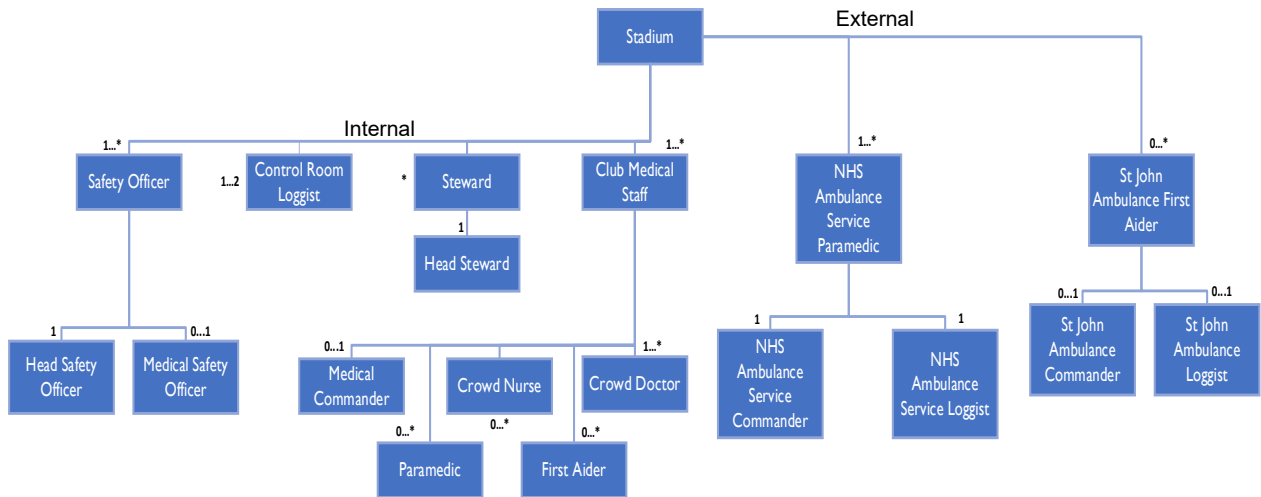


Figure 1 Medical resources present at Premier League football clubs

Event doctors were found to be directly contracted at all clubs investigated for this project, but event nurses were only present at two clubs³. All clubs required paramedics to be present at matches. In the majority of cases these originated from a local NHS Ambulance Service Trust. Wembley Stadium differed with its provision, where paramedics were directly employed by the stadium. All six Premier League clubs utilised St John Ambulance to provide first aid services, apart from Wembley Stadium, where first aid staff were also directly employed by the club. St John Ambulance is a first aid service provider primarily staffed by volunteers, with affiliations in both England and Wales.

For each external medical service provider contracted to provide medical services at a ground, there would always be a designated leader on the team, known as a 'Commander'. Additionally, some external service providers would also have a 'Loggist', who would accompany the Commander of the team, primarily responsible for completing any paperwork required. Some clubs also had in place additional job roles related to medical provisions at the ground such as 'Medical Safety Officers' or 'Medical Liaison Officers'. These individuals were responsible for supervising medical provisions at the club under the overall command of the Safety Officer. Wembley Stadium also had a 'Club Medical Commander', who is responsible for overseeing all medical provision at the stadium. This role is unique to Wembley, presumably because Wembley does not use any external service providers in their medical team. Table 2 shows the medical professionals and volunteers previously described found at the clubs investigated in this project, excluding event doctors, paramedics and first aiders as these individuals are required at all stadiums.

Table 2 Medical roles present at Premier League football clubs and Wembley Stadium

	WS	BHAFC	MCFC	EFC	CCFC	MUFC	NUFC
Medical Safety/Liaison Officer				X	X		
Club Medical Commander	X						
Ambulance Service Loggist			X	X	X	X	X

³ The Green Guide only requires the presence of event doctors, event nurses are not a requirement if paramedics and first aiders are also present.



St John Commander		X	X	X	X	X	X
St John Loggist		X	X	X	X	X	X
NHS Ambulance Service Commander	X	X	X	X	X	X	X

3.4.1 Command Structure

The hierarchical command structure of medical service providers also differs at each club. These differences affect the way medical job requests are triaged and allocated amongst the medical service providers present at a ground.

At the North West clubs (Manchester United FC, Manchester City FC and Everton FC), a Paramedic Commander from the North West Ambulance Service (NWAS) is responsible for the deployment of medical resources, including crowd doctors and nurses. The Paramedic Commander deploys their own NWAS paramedic resources and those employed by the club, by making contact with the individuals directly. The Commander requests first aid assistance from St John Ambulance first aiders through contacting the St John Ambulance Commander, who deploys the First Aiders as requested by individually contacting them. In contrast, at Cardiff City FC, Newcastle United FC and Brighton & Hove Albion FC, the local NHS Ambulance Service Commander and St John Ambulance Commander interact to jointly triage patients and decide which of the medical resources present at the ground are most appropriate to deploy. The Commanders of those services are responsible for contacting individuals from their own teams and requesting that they provide medical assistance at a particular location. As Wembley's medical provisions are entirely private, a designated staff member at this stadium is responsible for the triaging and deployment of all medical resources including crowd doctors, paramedics and first aiders.

3.4.2 Locations

The locations where medical staff and volunteers are based within a ground during a match also varies between clubs. Three locations around a sports ground are relevant to consider for spectator medical provisions: the control room, the medical (first aid) room(s) and elsewhere around the ground such as concourses or seating stands. At each of the clubs, different medical roles were based, or could operate within a different combination of these three areas. Table 3 details the possible locations different medical roles were based or operated in at the six Premier League grounds and Wembley Stadium.

Table 3 Areas of the Grounds where different medical roles based or can operate within

	Control Room	Medical Room	Stadium Environs
Head Safety Officer	X		
Medical Safety Officer/Medical Liaison	X	X	X
Control Room Loggist	X		
Steward			X



Head Steward	X		
Club Medical Commander		X	
Paramedic (NHS or Private)		X	X
Crowd Nurse		X	X
Crowd Doctor		X	X
First Aider (St John Ambulance or Private)		X	X
NHS Ambulance Service Commander	X		
NHS Ambulance Service Loggist	X		
St John Ambulance Commander	X	X	
St John Ambulance Loggist	X	X	

3.4.3 Communication Methods

The following three communication methods among the medical service providers at the clubs were identified:

- Direct verbal contact
- Radio systems
- Phone systems

Individuals based in the control room, such as the Safety Officer, NHS/St John Ambulance Commanders, Head Steward and Loggists, are able to communicate with each other through direct verbal contact. Stewards, medical professionals and volunteers, such as paramedics and first aiders, also communicate with the patients they treat through direct verbal contact.

Radio systems are often used to communicate amongst team members that are based at different locations around a ground. External medical service providers, such as NHS Ambulance Service Trusts and St John Ambulance often bring their own radio systems to events through which they communicate with members of their own teams. However, in some cases communication systems are provided for use of the entire medical team by the club. Stewards will have a separate radio system, through which Steward Supervisors can communicate with each other and with the Head Steward or Safety Officer based in the control room.

Phone communication systems were not generally utilised, as they were considered to be unreliable due to signal strength issues within larger grounds. However, some St John Ambulance teams did use this method of communication amongst themselves. Both mobile



and wired telephone communication systems are also available at grounds as backup options in many cases if radio systems fail.

Figure 2 illustrates an example of the methods through which medical staff and volunteers present at Brighton & Hove Albion F.C communicate. Communication diagrams such as this for all six clubs Premier League clubs can be found in Appendix C.

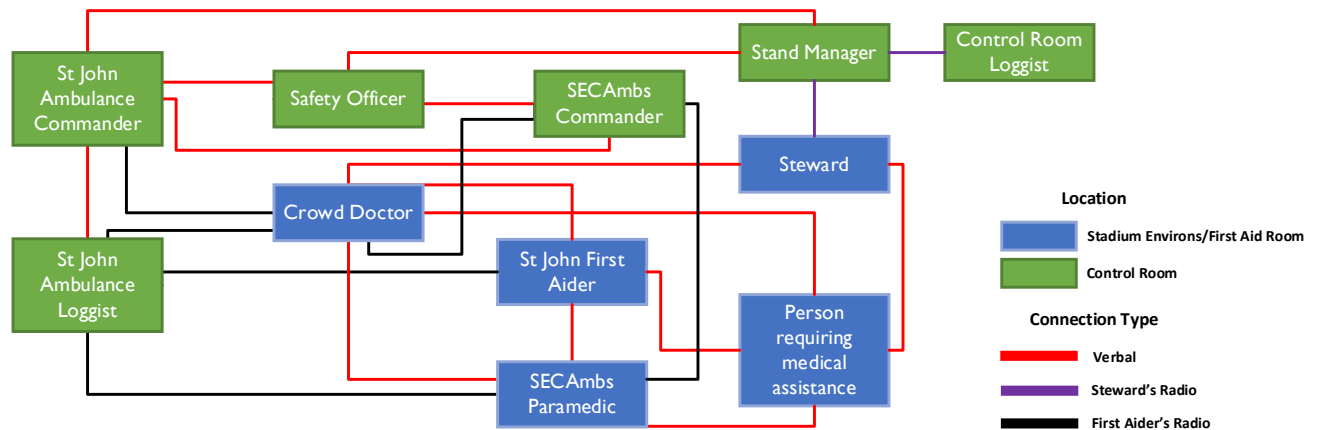


Figure 2 Communication methods in the medical team at Brighton & Hove Albion FC

3.5 Medical Data Collected at Football Clubs

Medical data is collected by both football clubs and external organisations contracted to provide medical services at sports grounds. It was found that medical data collected at football clubs during events can be divided into four categories:

- Patient report forms
- Audit data
- Deployment logs
- Other data

3.5.1 Patient Report Forms

Patient report forms (PRFs), also sometimes called patient clinical reports (PCRs), are filled out whenever a patient is treated during an event at a club. They typically contain patient's personal details, details of the injury or illness and details of any treatment given. Further contextual information about the injury or illness is sometimes recorded on these forms, but only if it is relevant to the medical treatment provided. As they collect patient personal details, PRFs are subject to medical confidentiality rules as defined by the Caldecott Principles.

PRFs are generally given to medical providers at the sports grounds in the form of individual sheets of paper, so that they can be kept with the patient if required. PRFs are almost always completed by hand. In most cases, they are constructed from carbon sheets, so that when they have been completed, duplicates or triplicates are immediately created that can be allocated to individuals or medical organisations as required. Some NHS Ambulance Service Trusts are beginning to transfer to electronic versions of these forms, to allow practitioners to complete them on a handheld device rather than on paper.



Each medical service provider requires their employees or volunteers to complete PRFs produced by their own organisation and thus, several different types of PRFs are often used during the same event. St John Ambulance volunteers make use of a standard St John Ambulance PRF in England. Only a small section of this A3 sized form is filled out for minor injuries or illnesses. However, there is room on the form for more information to be recorded for treatment of a patient with a more severe condition. In Wales, there are two versions of St John Ambulance PRFs – one for minor injuries or illnesses and one for more severe conditions. If NHS service providers are contracted to provide medical assistance at a ground, their paramedics also use their own NHS Ambulance Service PRF when treating patients. The format of PRFs are unique to each NHS Ambulance Trust. Some football clubs also produce their own PRFs, especially if they utilise medical personnel employed directly by the club, such as Wembley Stadium.

Under most circumstances⁴, football clubs do not have access to the PRFs completed during events due to patient confidentiality and data ownership issues. This is because the forms contain patient identifying information and are owned by the organisation that provided the medical treatment. For instance, football clubs are not able to access PRFs completed by St John Ambulance volunteers. At the end of a match, a St John Ambulance volunteer collects all of the PRFs completed by their volunteers and sends them to the regional St John Ambulance headquarters for storage. The club does not get to keep any copies of these forms. Similar data sharing procedures are followed by NHS ambulance trusts. Consequently, although a PRF will be completed whenever a patient is treated during an event at a club, these forms are not the source of the spectator injury data the SGSA is supplied with by clubs, as clubs do not generally have access this data.

3.5.2 Audit Data

Audit forms collect information on the types of injuries and illness being treated at clubs, but they are not used to aid with medical treatment. Medical audit data is collected at clubs through one of two approaches. The first approach involves a medical practitioner completing an 'individual' form which is typically of a single sheet of paper, which asks for details about one specific medical incident. The second method involves the completion of a form that aggregates data collected on multiple injuries. Again, this is usually presented as a single sheet of paper. Audit forms are produced by football clubs themselves and also by external organisations such as St John Ambulance and NHS Ambulance Service Trusts. Club forms are filled out by any individual involved in medical service provision during an event, but external organisations' forms are typically only used by individuals belonging to that organisation. The audit forms observed in use at each of the clubs involved in this study differed markedly, both in terms of their layout and content.

Audit forms, both individual and aggregated types, collect summary information on injuries or illnesses treated by medical practitioners during an event. Data collected can include the following information: patient demographic information (age, sex, hometown), patient group (spectator or staff), location of the injury/illness on the body, cause of the injury/illness, type, or presentation, of the injury/illness, details of any treatment given, the onwards destination of the patient (for example home, hospital or returned to their original location in the ground), the organisation to which the medical practitioner giving treatment belongs and various other types of contextual information. In contrast to PRFs, audit forms do not typically ask for

⁴ These documents can be accessed by football clubs if they pertain to a lawsuit or criminal investigation.



patient identifying information, unless patients explicitly give their consent for this to be collected. Thus, football clubs do have access to the data collected using audit forms.

Audit data is the origin of the spectator injury data received by the SGSA from each club at the end of each season. It can be thought of as a type of 'secondary data', as it is collected for a purpose other than for aiding with medical treatment. Some audit data forms are designed to collect data on all medical treatments provided at a ground, such as illnesses and exacerbations of pre-existing conditions, not only treatments given to spectators with injuries.

3.5.3 Deployment Logs

Another type of data collected detailing medical provisions at sports grounds is deployment logs. Most organisations involved with medical provision at football clubs, such as St John Ambulance and NHS ambulance service providers, keep a deployment log that records up-to-date information about the location and availability of their medical resources during an event. The log is updated whenever the medical team responds to a new incident or have finished addressing a previous incident. Deployment logs aid the commander of each medical service provider with allocating their medical resources appropriately during the event.

The format, sophistication and level of detail recorded in these deployment logs varies. Logs differ depending on the medical service provider, the number of medical resources, the capacity of the ground and the technology available at the club. For instance, at Newcastle United FC, NEAS provides 16 paramedics to assist with medical provision at St James' Park. Their deployment log consists of the locations of the paramedics noted down by hand on a sheet of paper. In contrast, at Brighton and Hove Albion FC, St John Ambulance records both the locations of their first aid resources and the incidents they are responding to, through an online centralised incident command system.

Generally, deployment logs contain limited details of individual medical incidents responded to, as this is not their purpose. After the match ends, deployment logs are not normally examined to obtain additional information on about medical incidents. Similarly to PRFs, deployment logs are owned by each medical service provider and thus, football clubs do not typically have access to them.

3.5.4 Other Types of Medical Data

Football clubs are also required by the Green Guide to record and log all radio communications. This recording is done by a football club employee based in the control room during the match – the 'Control Room Loggist'. Medical incidents will be recorded in these logs if, for instance, a steward requests medical support for a person they find injured or ill. Only information relayed through the radio communications system is recorded in these logs. In most instances, after a match has finished, clubs will not undertake any sort of process to relate the information recorded about a medical incident in the radio log with other data collected about a medical incident such as a PRF, audit form, or deployment log. Exceptions to this occur when the club is either investigating a health and safety related issue, or the data has been requested to be used as evidence in a lawsuit or criminal investigation.

CCTV footage and other types of video data such as that recorded on body-worn cameras is also collected at football clubs, and by stewarding agencies and the police. This footage will



be stored for a designated amount of time after an event has finished. Again, video data is not usually processed to relate it to any other kind of data collected about a spectator injuries or illnesses after the match has ended.

3.5.5 Comparison of Data Collected at Football Clubs

The table below details the different types of medical data collected at each of the seven clubs investigated. The medical data collected and the specific forms utilised at each club partially align with the different organisations involved in medical service provision at each of the clubs. However, differences are still evident between the clubs in the forms used for audit data collection.

Examples of all forms described in this section can be found in Appendix B.

Table 4 Types of Medical Data Collected at each of the six Premier League clubs investigated

	WS	BHAFC	MCFC	EFC	CCFC	MUFC	NUFC
St John Ambulance PRF		X	X	X	X*	X	X
Local NHS Ambulance Service Trust PRF			X	X	X	X	X
Private Medical Service PRF	X						
Club Individual Audit Form				X	X	X**	
Local NHS Ambulance Service Individual Audit Form			X				
St John Ambulance Aggregated Audit Form			X				X
Club Aggregated Audit Form	X	X				X**	X
St John Ambulance Deployment Log		X	X	X	X	X	X
Local NHS Ambulance Service Deployment Log			X	X	X	X	
Private Medical Service Deployment Log	X						

* St John Ambulance Wales PRF (all other St John Ambulance PRFs are English)

**E-reporting system, records are entered individually but aggregated data is produced.

3.6 Medical Data Collection Processes at Football Clubs

The primary objective of any medical practitioner at football ground is to provide medical care as required during an event. Therefore, PRFs are almost always completed before audit data is collected, as PRFs aid with medical treatment, and audit data does not.

Typically, audit data will be collected by first aiders completing an audit type form – this occurs at all six of the Premier League clubs investigated during this project. Even when a patient is treated by a paramedic, crowd nurse, or crowd doctor, a first aider will still normally complete the audit form. At all stadiums apart from Wembley, the First Aiders tasked with filling out audit forms are St John Ambulance volunteers. Only in complex medical cases will



other medical practitioners such as a crowd doctor or paramedic complete an audit form. Nonetheless, no matter who completes it, an audit form is always filled out after a PRF has been completed.

After a football event ends at a ground, one member of each sub-team involved in medical service provision at the ground is required to collect all of the PRFs and audit forms used during the match from the various medical rooms located around the ground. An example is Cardiff City FC. At the end of a match, the Medical Safety Officer visits each of the medical rooms around the stadium and collects all of the completed Cardiff City FC audit data forms, for further processing and storage by the club at another time. The St John Commander also undertakes the same process at the end of the match, but instead of collecting audit forms, collects the St John Ambulance PRFs. The St John Commander then sends the PRFs directly to the regional St John Ambulance headquarters for processing and storage.

Medical service providers such as St John Ambulance and Local NHS Ambulance Service Trusts train their medical staff and volunteers on how to complete their own PRFs. However, at the majority of clubs investigated for this research, the first aiders responsible for completing audit forms were found not have been given any training, either by the football club, or from their own organisation (typically St John Ambulance), on how to correctly fill in the audit forms they are required to complete.

3.6.1 Process Diagrams

The three diagrams presented on the next few pages display the process by which various types of medical data are collected at Brighton & Hove Albion FC. The first diagram, Figure 3, displays the process by which a patient would be treated for a minor illness or injury. The diagram indicates the times during this treatment process when medical data is collected by a St John Ambulance first aider.

The diagram demonstrates that when a first aider initially makes contact with a patient, they will first ask the patient for their personal details, such as their name, age or date of birth and address. First aiders will then write this information on to a St John Ambulance PRF. The first aider will then conduct an examination of the patient, writing information concerning the patient's medical condition on to the PRF. They will then treat the patient, again writing the treatment details on the PRF. Only once this process has been completed do they turn their attention to the Brighton Club Form, an aggregated audit type form. On this they will write details of the patient's injury or illness. Often, the first aiders will require additional information about the patient's medical condition to complete the Brighton Club Form. To obtain this, they will either consult the PRF, or ask the patient to tell them this information directly. For instance, the Brighton audit form specifically asks about if an injury has occurred in an area of persistent standing. It is unlikely that the first aider would have recorded information such as this on the PRF, so they would have to ask the patient directly for further details about the conditions under which their injury or illness occurred.

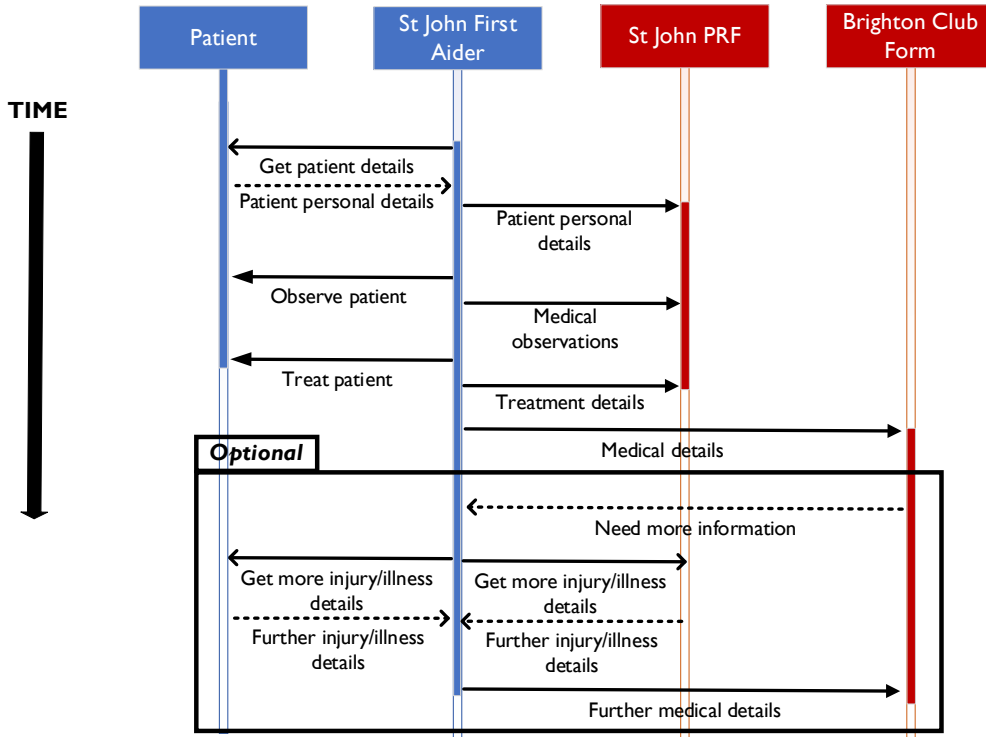


Figure 3 Treatment process for patient with a minor injury at Brighton & Hove Albion FC

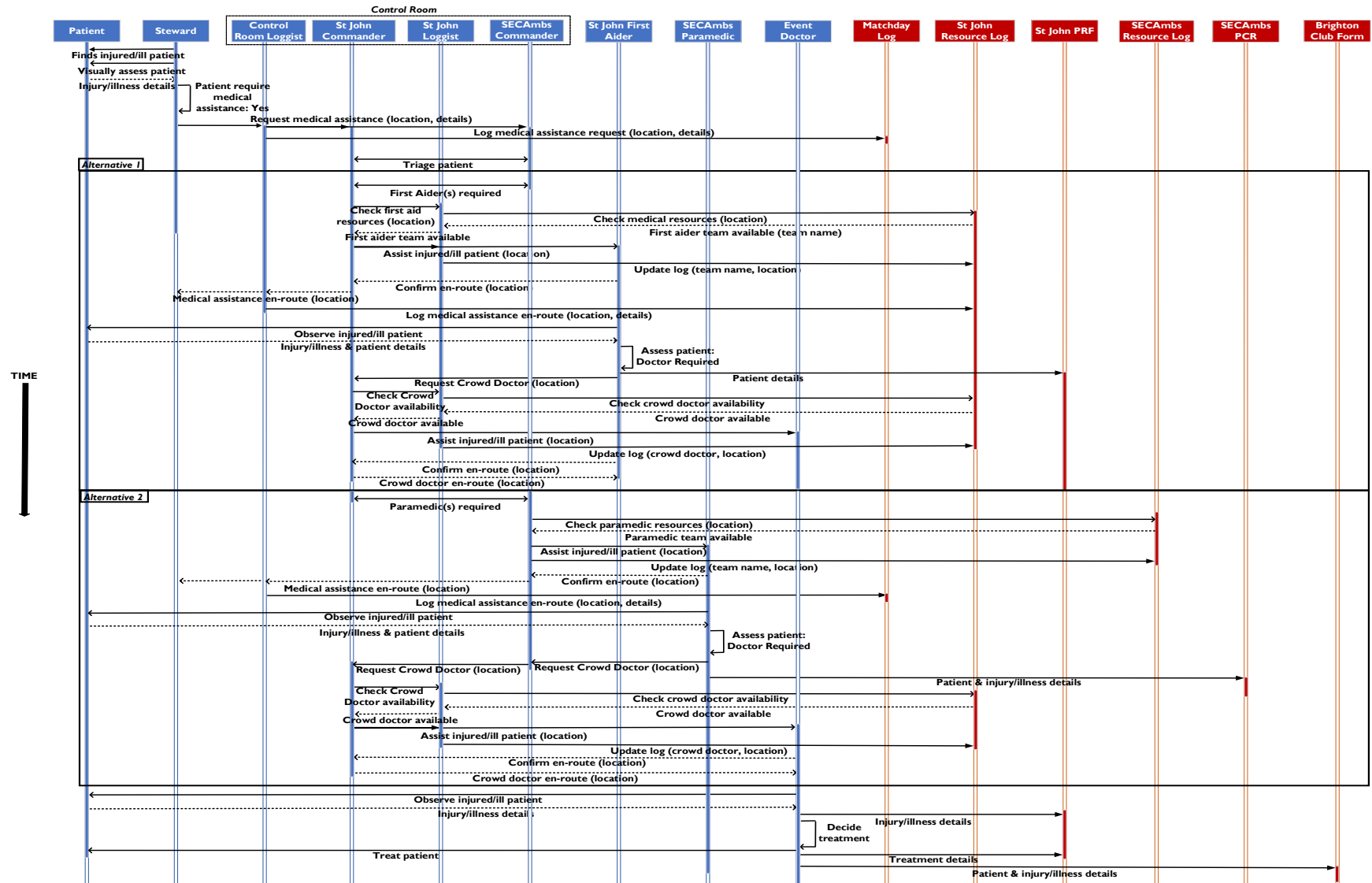
The second process diagram, Figure 4, illustrates how complex the process of medical data collection can become at clubs. This diagram displays the process that would occur if medical assistance is initially requested by a steward located somewhere within the ground. This process involves messages being passed between eight different individuals (including the patient), both verbally and through the utilisation of two different radio systems. Moreover, it demonstrates that this process would eventually result in the creation or updating of four different types of medical data, including an audit type form.

The final process diagram, Figure 5, displays how medical audit data is collated at the ground at the end of each match. It will be collected by the St John Ambulance Deputy Commander and then filtered so that only injuries (as opposed to illness or exacerbations of pre-existing conditions) are transcribed onto the SGSA's spectator injury data spreadsheet based form. Details of the injuries are transcribed onto the SGSA form at the end of each match. Then, both halfway through and at the end of the football season, this data is sent by the safety officer to the SGSA.

Appendix B contains further diagrams detailing the processes by which medical data is collected at the other five Premier League clubs involved with this project.



Figure 4 Treatment process for a patient with a more severe injury at Brighton & Hove Albion FC



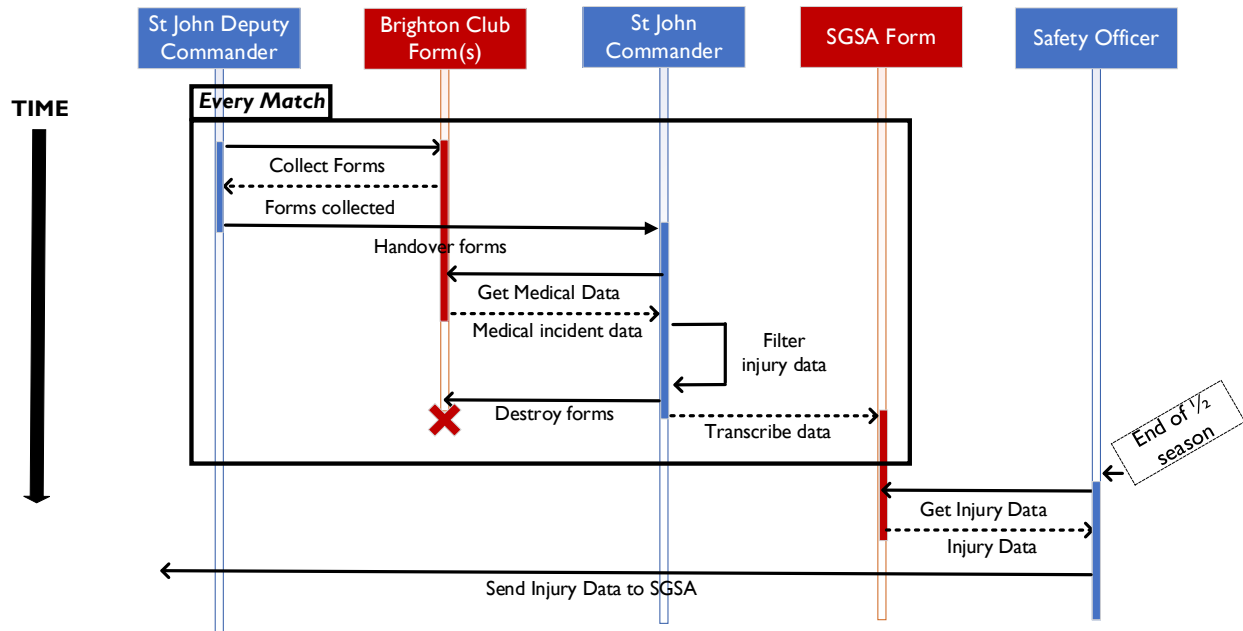


Figure 5 Collection and Aggregation Process for Medical Audit Data at Brighton & Hove Albion FC

3.7 Stakeholder Perspectives

Figure 6 displays the various stakeholders associated with spectator injury data at football stadiums in England and Wales. The next sections of the report provide brief insights into the opinions of these stakeholders on various topics related to spectator injury data collection, which have been derived from interviews conducted with representatives from each of these stakeholder groups.

3.7.1 St John Ambulance (first aiders)

During the match visits, first aiders were questioned on their opinions of the audit forms they are asked to complete by the clubs and the processes by which they complete these forms. Three main themes emerged from their responses: the design of the forms; the content of the forms; and quality control and training issues.

Form Design

In the majority of cases first aiders will complete audit forms by hand, using pen and paper. Thus, they suggested that a single-sided, A4 sized form would be optimal for ergonomic reasons, compared to a double-sided, or A3 sized form. Moreover, the form must be quick to complete, as first aiders noted that sometimes audit forms are not completed if they are too busy treating patients. Therefore, they recommended that the form consist mostly of tick boxes, instead of free text entry boxes, as tick boxes take less time to complete. Additionally, they suggested limiting the number of categories for the tick boxes, also to reduce the amount of time it takes to complete the form. At one club, the audit form made



Figure 6 Stakeholders of Spectator Injury Data

use of a coding scheme⁵. First aiders were critical of this as they believed it overcomplicated the data collection process. There was an overall agreement amongst first aiders that a well-designed audit form would minimise training requirements for them.

Form Content

First aiders at some of the clubs said they found it difficult to understand the distinction between ‘illnesses’ and ‘injuries’ – so they simply completed audit forms for all medical incidents, even if injuries were only required to be recorded. However, they believed the audit forms were designed to collect data about injuries, so often the categories presented as responses for certain questions were not appropriate for illnesses. For instance, providing information about the part of the body affected is not relevant to all illnesses. It also may be difficult in this case to distinguish head injuries from headaches. Another issue with definitions is related to ‘persistent standing’. Some audit forms question if an injury has occurred in an area of persistent standing. To obtain this information, first aiders have to directly ask the patient if they had been injured in

⁵ The coding scheme detailed potential answer categories for each question, giving each potential answer a corresponding number. The first aiders would therefore write the number onto the audit form rather than the answer category itself.



an area of persistent standing, as the first aider would not know this information, being based in a medical room. Furthermore, first aiders are often unsure about the exact definition of 'persistent standing', especially how it differs to celebrative standing such as that occurring after a goal has been scored, and therefore tended to always answer 'no' to this question.

First aiders also recommended that an 'other' option be included within answer categories for certain questions, allowing space for further details to be entered if necessary. Additionally, some first aiders highlighted that in many cases the location in which the injury or illness occurred was being recorded as the first aid room itself, so the location of injury should not be provided on a form as a free-text entry box. First aiders are in most cases able to collect information on patient's row and seat numbers, so agreed that it is reasonable to ask for this information on an audit form. Furthermore, they suggested that having space available on the form to record the reference number of a St John Ambulance or other PRF form corresponding to a particular medical incident would be useful for future referencing purposes.

Quality Control and Training Issues

Many first aiders reported that they did not understand the purpose of some of the questions asked on the audit forms. In many cases, they were also unaware that the data collected on these forms was being sent to the sports grounds safety regulator, the SGSA. Some first aiders divulged that very minor injuries (for example small cuts requiring a plaster) were unlikely to be recorded on PRFs or audit forms, especially if treatments for these are given outside of a medical room. This was often due to time constraints, especially if patients were spectators that wanted to return to watching the football match as quickly as possible. Some first aiders also expressed concerns with including too much detail in the free text spaces on audit forms, as they were worried about potential confidentiality issues (even though patient identifying information is not collected on audit forms). In most clubs, the first aiders will have a 'treatment manager' present in charge of each medical room. Treatment managers often have to conduct informal quality assessment checks on completed audit forms to ensure they had been filled out correctly by other first aiders.

3.7.2 St John Ambulance (Operations)

An interview was conducted with a St John Ambulance Regional Operations Manager and Operations Support Manager, to obtain operational level views of the processes by which first aiders collect spectator injury data at football clubs. The representatives confirmed that St John Ambulance volunteers are responsible for first aid provision at most Premier League football clubs. Therefore, they suspected that the majority of spectator injury data collected at football clubs originates from St John Ambulance volunteers. They also noted that their volunteers cover events at rugby clubs as well, with many of these clubs also follow the recommendations of the Green Guide, and therefore that they would collect similar spectator injury data to football clubs. Regarding the quality and uses of St John Ambulance PRFs, the Regional Operations and Operations Support Manager detailed that after these forms have been received at their regional headquarters and examined for clinical correctness, a data quality check is conducted when they are scanned into the digital data storage system. Although they do conduct audits of the PRFs they store, they do not examine data specifically collected from football clubs.



The managers also explained that St John Ambulance volunteers are given training on how to complete the St John Ambulance PRFs, but they cannot be trained in the completion of audit type forms, as these differ at every club. If audit forms were standardised at football clubs, it would be possible to incorporate training on how to complete these into their existing training schemes. The managers also detailed some specific recommendations that they had for audit forms, including that they shouldn't ask for patient identifiable information, unless the incident was RIDDOR reportable. They also suggested that if categorical data fields were supplied, these should be as easily understandable as possible and the form should not require a lot of free-text entry. The managers indicated that the St John Ambulance clinical team would be willing to assist with the redevelopment of data categories on a standardised audit form, if this was desired, as St John Ambulance have previously worked with the SGSA to ensure illnesses are being recorded on these forms as well as injuries. In terms of how St John Ambulance could use medical data collected from audit forms, the managers revealed that this wouldn't necessarily be that useful to them, as they already audit the medical data supplied on their own PRFs, but they could see how this data would be useful for other stakeholders.

3.7.3 NHS Ambulance Service Providers

NHS ambulance service paramedics were also questioned regarding their views on spectator injury data collection and associated audit forms during the match visits. NWS paramedics providing services at Manchester City FC were content with the procedure they used to complete audit type forms, which involved them being filled out by hand by an NWS Loggist in the control room, and updated as necessary with additional information throughout the event. NWS was also happy with the electronic reporting system used at Manchester United FC to collect audit data. NEAS paramedics at Everton FC, Welsh Ambulance Service Trust (WAST) paramedics at Cardiff City FC and South East Ambulance Service (SECamb) paramedics at Brighton & Hove Albion FC had no particular comments on the audit data collection processes at these grounds, as at all of these clubs first aiders were solely responsible for the completion of audit forms.

In terms of the content of the audit forms, NWS paramedics commented that it would be useful if the form was able to easily distinguish medical incidents relevant to health and safety concerns, so that they can be flagged for further investigation by the club. They also expressed that there should be a clearer distinction on a form on whether the incident they were recording data about was an exacerbation of a pre-existing condition, an illness, or an injury. When questioned on how NHS Ambulance Service Providers may wish to use audit data after an event had occurred, some paramedics stated that it would be useful to have follow-up information available about the conditions of the patients they have treated. Furthermore, it would be advantageous to be able to compare medical incidents recorded at different clubs, to determine the range of medical conditions paramedics may be required to treat.

3.7.4 Private Medical Service Providers

Private medical service providers may be responsible for first aid provision in lower tier football clubs if they are unable to attract the required number of St John Ambulance volunteers. However, the scope of this project was limited to Premier League clubs and therefore representatives from private medical service were not contacted for their comments on spectator injury data collection processes.



3.7.5 Sports Grounds Safety Authority (Regulator)

An interview with the SGSA's Head of Policy, who is currently responsible for the processing and compilation of spectator injury data, was conducted towards the start of the project. Topics discussed at the meeting included the processes by which the SGSA receives injury data from clubs, the processing requirements of this data and potential improvements that could be made to this process, which are further detailed in the paragraphs below.

The SGSA currently receives spectator injury data from clubs in the format of an electronic spreadsheet. At the beginning of the 2016/17 football season, the spectator injury data submission spreadsheet was merged with club's license application forms, for administrative reasons. The new SGSA spectator injury data collection form was supplied to clubs during 2016/17 season, but only became a requirement for them to use during the 2017/18 season. Spectator injury data is actually collected from clubs at two points in the year – both halfway through and at the end of the season. This bi-seasonal collection of data is the result of time constraints within the licensing application process. Injury data is required for licenses to be issued to clubs at the end of each season, ready for the start of the new season, but in order for this to be completed on time, only the first half of the season's data is available to process. One issue with this bi-seasonal method of data collection is that often clubs are unclear on the time periods for which they are required to submit injury data. As a result, clubs often submit more data than required, which then has to be removed manually. During the last season, the SGSA has tried to be more active with communicating to the clubs the bi-seasonal data requirements directly, but sometimes it has found that even amongst employees at the same club, their knowledge of submission requirements differs significantly. It was noted that for around a quarter of incidents in the most recent injury data submitted to the SGSA, the cause of the incidents was listed as 'unknown.' This data is not useful to clubs or the SGSA and reflects that the answer categories for each question have evolved over time and may not reflect the most commonly observed medical incident variables.

Once the SGSA receives the injury data, every single record has to be reviewed to ensure that it is an injury, not an illness, that it occurred within the jurisdiction of the ground and that it has been classified correctly. Sometimes up to 60-70% of incidents clubs record have to be removed. This is an extremely time-consuming process, as it takes on average half an hour to process the data received from each club and even longer if it is presented in an inconsistent format. The total number of injuries reported due to all possible causes can then be calculated after the data has been processed. Various issues were noted with this process of analysis, including the high potential for transcription errors due to the use of spreadsheets rather than a database. The advantages of having a database would mean that this review process would be less labour intensive for the SGSA, it would be easier for the clubs to submit injury data in real-time and there would therefore be the potential to do much more with the data.

A further concern with the compilation of spectator injury data that was not immediately obvious, and only became apparent during the interview, was that incomplete returns from clubs may mean that the SGSA relies on estimated attendance figures, resulting in spectator injury ratios (i.e. the number of injuries that occur per spectator) that may not necessarily be accurate.

Some interesting points were also made concerning the SGSA's usages and interest in spectator injury data. It emerged that the SGSA has not defined any strategic objectives for why



they are collecting spectator injury data. However, the organisation has been interested in utilising the data for a number of purposes, such as investigating staff injuries, determining its usefulness for examining the safety of persistent standing areas, exploring injury causations and conducting risk assessments at clubs. It has determined that the data they currently have is not necessarily usable for these purposes, although it may be useful if it could be triangulated with other kinds of data. What the spectator injury data is useful for is being able to ascertain the total number of spectators that are injured at football matches every year, but again this may not necessarily reflect reality, as incidents are only recorded if spectators seek and agree to treatment in the first place.

3.7.6 Crowd doctors

Crowd doctors were questioned on their opinions of spectator injury data during the match day visits conducted at the partner clubs. A meeting was also held with a representative of the National Events Medicine Advisory Group (NEMAG), a working group of crowd doctors.

Regarding the collection of spectator injury data, the crowd doctors generally did not express any strong opinions on the data collection processes but made quite a few recommendations for how the SGSA's data collection spreadsheet could be improved. They believed that the data categories should be redesigned so that they would be of more use to medical practitioners and such a re-design should be conducted through consultations with medical professionals. They stressed that the data collection form should be simple and easy to complete. The best way to achieve this would be to create an online form consisting solely of tick boxes, with no space for free text entry. The issue crowd doctors saw with free text entry is that data collected in this format could be irrelevant to the medical incident and thus would increase processing requirements for data analysis. The data collection form should allow for combinations of injuries or illnesses and their causes to be recorded, as well as collect the following data about incidents: the timing of the incident relative to the event; the location of the incident within the ground (in a such a way that is not specific to a particular ground); and the resources required for treatment – which medical practitioners were involved with treating the patient. They also specified that certain data categories could be altered to align with those already used by medical professionals, such as the Royal College of Child Health's age categories. Crowd doctors also supported the proposal that data should be collected about all medical incidents, not just injuries, confirming that the majority of medical cases they treat at grounds are not injuries, rather illnesses or exacerbations of pre-existing conditions. If a new data collection form was developed, they recommended that a training scheme should be provided to those responsible for completing these forms, involving the utilisation of case studies, and could even be run online.

The suggestion to collect all medical incident data, rather than simply injury data, reinforced the crowd doctors' statements regarding their potential usages of this data, which were primarily related to how it would be useful for informing medical provision and resourcing at grounds. Furthermore, if clubs were able to access this data, they could use it to compare medical provisions amongst themselves. Crowd doctors at some clubs also have responsibility for ordering medical supplies, and audit data can be useful for aiding with this process. Regarding injuries specifically, crowd doctors mentioned how along with this data being useful for benchmarking purposes for the SGSA, it can also be useful from a health and safety perspective if injury patterns can be determined and necessary interventions then implemented



in clubs. Accurate medical incident data, provided at a national level, would also be of interest to crowd doctors for educational purposes, and could aid with the delivery of educational courses such as Faculty of Pre-Hospital Care's Crowd Doctor Course⁶ and a Major Incident and Medical Management and Support (MIMMS) Course⁷ that is currently under development.

Crowd doctors were keen to stress that spectator medical provision in stadium environments is different to that required other types of sporting events, such as horse racing and marathons. The format of spectator injury data collected can even differ within the same stadium hosting different types of events. For example, concerts held at a stadium are more demanding on medical resources than football matches, hence less information may be collected on injuries than that which is required for football matches. Crowd doctors also questioned whether their provision of treatment to spectators presenting with exacerbations of pre-existing conditions, that in many cases will have occurred prior to the football match, was the most appropriate use of clubs' medical resources. In relation to the overall requirements of collecting spectator injury data, the doctors stated that it would be useful if the SGSA was clearer with its regulatory requirements relating to this, as they believed it was currently unclear if this data is required as part of the licensing application. Additionally, they emphasised that it is important to consult all stakeholders of medical incident data before making any changes to data collection processes or audit forms.

3.7.7 Local Councils and Safety Advisory Groups

Representatives from a Safety Advisory Group (SAG) were interviewed during the second half of the project. This particular SAG's representatives are responsible for providing advice to two London Boroughs on ensuring spectator safety at their sports grounds. Both an Environmental Health Officer involved in regulatory health and safety work and a Director of Public Protection were present at the meeting. Subjects discussed included how SAGs used injury data, the utility of the spectator injury data that is currently collected and their recommendations for how spectator injury data can be improved.

The representatives stated that the SAG they belong to meets twice per football season – halfway through and at the end of the season – to review the previous season and plan for the next one. The borough representatives interviewed were unsure whether the clubs supply the SAG with injury data in the same format as it is supplied to the SGSA, but they do receive a breakdown of different types of injuries. They stated that they focus on reviewing this data during the second SAG meeting that occurs the end of the football season. They stated that the SAG is not concerned with determining absolute numbers of injuries in the clubs but are more interested in investigating potential injury trends from a health and safety perspective. They stated that they believe there are inherent limitations with conclusions that can be drawn from spectator injury data, as it is only collected when medical treatment is actively sought and 'near misses' are not recorded. They suggested it would be interesting to investigate if spectator injury data could be triangulated with another data source, such as steward's observations and notes, to further investigate potential safety issues at clubs. They were also interested in

⁶ For more information on this course see <https://fphc.rcsed.ac.uk/education/crowd-doctor-practitioner-course>

⁷ See <https://www.prometheusmedical.co.uk/courses/mimms-major-incident-medical-management-and-support-course> for further details.



whether there was any onus for clubs to investigate health and safety issues reported on non-match days, as part their wider interests in examining safety culture at clubs.

The representatives suggested some improvements that could be made to spectator injury data so that it would be more beneficial for them. This included the ability to differentiate between injuries occurring in different areas of the stadium and to have more details recorded about match itself, so as to determine if there are differences in injury patterns between domestic and international matches. Additionally, the inclusion of a box on an audit form which could be used to 'flag' incidents that require further examination would be useful. It also would be advantageous for the SAG if they could have access to spectator injury data more regularly than twice per season, as it would aid council advisors with their match inspections and would be available to use as evidence if a major incident were to occur at one of their grounds.

3.7.8 EFL, The FA and The Premier League

Representatives from the EFL and Premier League were present at the working group meetings held throughout the project. The Premier League recognised that current spectator injury data collection processes are poor. They were interested in improving data collection processes for two reasons – to make the data more useful for informing policy discussions at a strategic level and for aiding with safety officer's work in the clubs at a tactical level. They had little to say on the processes by which the data is collected, apart from a few points related to a recent review they had conducted where they had attempted to utilise spectator injury data collected during the 2016/17 football season. The review investigated persistent standing at clubs, but during the review they identified that it was challenging to compare or contrast different clubs and to identify common themes and issues, due to the inconsistency of the spectator injury data sets and the differences in commentary amongst clubs.

3.7.9 Football clubs

Perspectives of the safety officers at each of the Premier League clubs involved with this project were taken into account through questioning on match days and within the working group meetings. Topics discussed with these representatives included the scope of data that should be collected and issues they had already identified with this data. Furthermore, the safety officers discussed how their clubs currently make use of the spectator injury data they collect, before it is sent to the SGSA.

Regarding the scope of data that should be collected at clubs, the safety officers mentioned that the current data collection form provided by the SGSA does not have the ability to differentiate between illnesses and injuries. It has not been designed properly to collect information about illnesses, although at most grounds' illnesses and exacerbations of pre-existing conditions are treated more frequently than injuries. Safety officers noted that there is still an ongoing issue with the inconsistent use of terminology in relation to illnesses and injuries, making it difficult to easily distinguish between these conditions. The safety officers said that clubs do indeed treat patients presenting with exacerbations of pre-existing conditions, as it would not be moral to refuse them treatment. They mentioned that the audit forms provided at some clubs do collect data on illnesses as well as injuries, so when they are required to supply the SGSA with spectator injury data, a filtering process first has to be conducted to remove any illnesses recorded on these forms. Safety officers also commented that there is merit in looking into



recording all medical incidents, not just injuries, and then having the ability to filter it specifically for injuries if required, as this would make the data collected of more use to all stakeholders.

In terms of staff injuries, safety officers detailed how they recorded a lot of burns and cuts to catering staff and it is important to continue collecting data on these types of injuries. Furthermore, safety officers identified that the crowd profile can have a significant impact on the types of medical conditions treated during events. One club mentioned how they found more exacerbations of pre-existing conditions being presented when they moved from the Championship to the Premier League. In addition, different spectator groups will behave differently at grounds, which will affect the types of medical presentations commonly seen – for example, it is well known that rugby fans behave differently to football fans. Knowledge of spectator profiles for different events are often used to inform medical resourcing for upcoming events. Safety officers also revealed that medical coverage often extends outside of the curtilage of the ground recorded on their license applications, generally to include public transportation terminals and car parks. One safety officer reported that up to a quarter of medical incidents responded to by their medical team occur outside the official curtilage of the ground.

In terms of how clubs use the spectator injury data they collect, some will collate the data and analyse it, going on to present it to the local authority, or to their SAG. Other clubs will only evaluate injuries such as slips, trips and falls; as they need to determine if such injuries are their direct responsibility. During end-of-match debriefs, severe medical incidents that have occurred will often be discussed and any injury data collected is useful for presenting at these meetings. One club stated that they inspect the data regularly as they wish to confirm that areas of persistent standing within their ground are not experiencing higher rates of injuries. Particularly in relation to persistent standing, some safety officers expressed that they believed that areas in their grounds where this phenomenon may occur will not record more injuries. Furthermore, they believe that spectator injury data is able to prove this hypothesis at some clubs (due to the meticulous way in which it is collected), or that is not useful for examining this hypothesis at all, again due to the way in which it has been collected. Safety officers also specified that persistent standing is not the only spectator safety issue they should be concerned with – they should also be cautious of high crowd densities. Additionally, safety officers were concerned with how spectator relations are affected by the collection of injury data. Due to patient confidentiality principles, when a spectator is injured, the club cannot access their personal details. Therefore, they have no way of determining if the spectator is a long-standing supporter of the club, who they may wish to offer support to during their recovery from a medical incident.

Speaking about the actual format of the reporting system, safety officers agreed that there was merit to exploring the potential for developing an online or electronic based injury data collection system. It could have the potential to make more up-to-date data available to individual clubs, the SGSA and other stakeholders to use. The safety officer for the club where an electronic reporting system is currently in place (Manchester United FC) suggested that having an electronic system does make it easier to ensure data is not lost due to the misplacement of paper audit forms.



3.7.10 Football Supporters

Due to time limitations representatives from football supporters' groups were not contacted during this project to obtain their views on the collection of spectator injury data. However, they should be involved in the implementation of the recommendations proposed in the next section.



4 Recommendations

It is evident that in order to improve the quality of spectator injury data collected at football clubs, changes should be made to both the format of data collected and the manner in which it is aggregated. The following changes are recommended:

- The SGSA should develop strategic objectives reflecting their aims and intentions with the collection and analysis of the medical incident data from football clubs.
- The SGSA should collect data on all medical incidents that occur at sports grounds, not only injuries.
- Some questions should be removed entirely from the SGSA's current spectator injury data collection form, answer categories for other questions on the form should be revised and certain additional questions should be added in order to collect further relevant information on medical incidents.
- Medical service providers at clubs should all use the same audit type form to collect medical incident data.
- An online submission portal through which clubs can submit the medical incident data they collect directly to the SGSA should be developed.

The next section of this report details these recommendations more thoroughly.

Recommendation 1

The SGSA should develop strategic objectives reflecting their aims and intentions with the collection and analysis of the medical incident data from football clubs.

Stakeholders were unclear on whether the collection of spectator injury data is required as part of club's licensing applications. They were concerned with the SGSA's intentions for analysing the data, as they believed it would not appropriate to infer the causes of injuries from this data. Therefore, the reasoning behind the collection of data should be clearly explained by the SGSA, as well as the aims and intentions with analysing the data.

Recommendation 2

The SGSA should collect data detailing all medical incidents that occur at sports grounds, not only injuries.

The data currently required to be submitted to the SGSA by football clubs is limited to spectator injuries. Spectator injuries are only a small portion of all medical incidents treated at sports grounds during events. The collection of data detailing both injuries and other medical incidents treated will enable a more holistic understanding of medical issues such as illnesses and exacerbations of pre-existing conditions treated at events to be developed and allows for better management of medical resources. A medical usage rate (MUR) in patients per ten thousand (PPTT) can also be calculated for each club if this data is captured, which is a metric commonly used when comparing mass scale medical provisions. Furthermore, this complete medical incident dataset will overcome the current limitation of first aiders having to make a distinction



between illness and injuries when tasked with completing some audit forms. It will also reduce the resources needed by both the football clubs and the SGSA to filter out irrelevant data that is reported.

Recommendation 3

Some questions should be removed entirely from the SGSA's current spectator injury data collection form, answer categories for other questions on the form should be revised and certain additional questions should be added in order to collect further relevant information on medical incidents.

Firstly, questions related to persisting standing should be removed, because it is difficult to establish whether an injury was sustained within an area of persistent standing. Additionally, most stakeholders agreed that spectator injury data not particularly relevant for examining the phenomenon of persistent standing, as injury data is only recorded if a patient both seeks and consents to medical treatment in the first place.

Answer categories for the following data fields should be revised so that they will better describe medical incidents: location of the incident, age of the patient, the part of body affected, cause of injury or illness, presentation of injury or illness and onwards destination of the patient. This re-categorisation will speed-up data analysis and ensure consistent responses are collected for all incidents. Additionally, allowing multiple categories to be selected on the answer forms should be enabled, as it will also allow for more complex medical presentations to be accurately recorded and is already a feature of data collection forms in other industry sectors.

Furthermore, additional information should be collected about the resources required to treat patients as it is useful allocating medical resources. This data field was also included in the audit forms utilised for the majority of academic journal articles reviewed examining medical provisions at UK sports stadiums.

Information about the reporter details and PRF reference number(s) will mean that the staff or volunteers responsible for completing audit forms at each club can be easily determined and forms can be referenced if required.

It is important that the stakeholders are actively involved in the design of the form in order to ensure an effective form is designed that meets the needs of the reporter and the analysts. Stakeholders especially should be involved in the revision of the data categories to ensure they are fit for purpose. As an example, the age of the patient data field could be re-categorised to align to the Royal College of Child Health Age Categories (<1 year, 1-9 years, 10-19 years)⁸, with the addition of a category for elderly patients (>60 years), as this was determined to be important for the stakeholders interviewed as part of this project.

⁸ Age categories derived from The State of Child Health Report 2017
https://www.rcpch.ac.uk/sites/default/files/2018-04/state_of_child_health_2017_-_full_report.pdf



Recommendation 4

Medical service providers at clubs should all use the same audit-type form to collect medical incident data during events.

Football clubs all currently use different audit-type forms to collect data on spectator injuries and other medical incidents. In light of Recommendation 1, the audit forms used at each club should be standardised in order to ensure consistency of the data submitted to the SGSA. This standardisation will also reduce the resources needed for processing the data. Training on completion of the form could then be incorporated into existing training schemes for first aiders and other medical service providers, in order to ensure the forms are completed accurately.

Recommendation 5

An online submission portal through which clubs can submit the medical incident data they collect directly to the SGSA should be developed.

Appropriate employment of currently available digital technologies would enable an online submission portal to be developed through which football clubs could submit the medical incident data they record at matches directly to the SGSA, instead of submitting it through emails in spreadsheet format. If the data was submitted through such a portal, it can be aggregated directly into a database structure rather than a spreadsheet, which would reduce data processing requirements for the SGSA. Submission to an online form would also reduce the potential for transcription errors occurring when the data is aggregated at each club at the end of each match. The timeliness of data collection could also be improved with the use of this submission portal, as it will allow for data to be submitted to the SGSA after every match, rather than only twice per season.

Other stakeholders of medical incident data, such as football clubs, local councils and SAGs, could also be easily given access to the data if it were collected through a submission portal. Assuming recommendations 1-3 are also implemented, making this data available to stakeholders would aid them with maintaining a current awareness of potential safety issues at football clubs.



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Appendix A – Glossary and Acronyms

Glossary

Audit Type Form – A type of data collection form used to collect medical audit data (post-treatment) at sports grounds.

Green Guide – Alternative title of the ‘Guide to Safety at Sports Grounds’, a guidance book produced by the Sports Grounds Safety Authority detailing how spectators can safely be accommodated within a sports ground. The Guide has no statutory force itself, but compliance to its recommendations is required for a football ground admitting spectators in England or Wales to be issued with a safety certificate allowing it to operate.

Persistent Standing – The practice of spectators standing in seated areas of sports grounds. As a condition of the safety license issued to football clubs by the SGSA, spectators may not stand in seated areas whilst play is in progress.

PRF – A type of data collection form used by medical practitioner to record details of a patient’s condition and any medical treatment given.

RIDDOR – Reporting of Injuries, Diseases and Dangerous Occurrences Regulations is a 2013 statutory regulation obligating the reporting of deaths, injuries, diseases and other dangerous occurrences, including near misses that take place at work, or in connection with work.

St John Ambulance – A volunteer led, charitable non-governmental organisation dedicated to the teaching and practice of first aid. ‘St John Ambulance’ is the official name of the English affiliate and ‘St John Cymru-Wales’ the official name of the Welsh affiliate.

Acronyms

BHAFC	Brighton & Hove Albion FC
CAA	Civil Aviation Authority
CCFC	Cardiff City FC
EFC	Everton FC
EFL	English Football League
HSE	Health and Safety Executive
LRF TRMC	Lloyd’s Register Foundation Transport Risk Management Centre
MCFC	Manchester City FC
MOR	Mandatory occurrence report (UK Civil Aviation Authority)



MUFC	Manchester United FC
NEAS	North East Ambulance Service
NUFC	Newcastle United FC
NWAS	North West Ambulance Service
PL	Premier League
PRF	Patient Report Form
SAG	Safety Advisory Group
SECAmbs	South East Coast Ambulance Service
SGSA	Sports Grounds Safety Authority
WAST	Welsh Ambulance Service Trust
WS	Wembley Stadium



Appendix B – Spectator Injury Data Collection Forms

Sports Grounds Safety Authority Data Collection Form

SGSA
Sports Grounds Safety Authority

Application for a Licence to Admit Spectators Under Football Spectators Act 1989

Detailed Injury Records

The data on this "Detailed Injury Records" worksheet should be submitted in two parts on two separate occasions:
 - The first submission must be returned as part of the Licence Application on or before 31st March 2018 and consist of data from the start of the 2017/18 football season (excluding any pre-season friendly matches) up to and including 31st January 2018
 - The second submission must be returned on or before 30th June 2018 and consist of data from 1st February 2018 up to and including the last match of the season.

Record below individual injuries and illnesses treated at the ground during a football match.
 Where you have an electronic injury reporting system or database which records the required information the SGSA may agree to the submission of an interrogatable, electronic version of this may be supplied instead. Contact the SGSA to discuss.

Efforts should be made to fill in all columns for a given incident and procedures put in place to collect this data for the future. However, where data is not known, for columns C "Time period in which injury occurred" and F "Patient Group" to I "Cause of injury" inclusive, "unknown" may be selected from the drop down list.

Insert new rows above the last (greyed) row in the table.

Date of Incident	Name of Away Team at match	Time period in which injury occurred	Exact location of incident	Was there Persistent Standing in this location?	Patient Group	Age	Part of body injured	Cause of injury	Injury presentation	Was the patient taken to hospital?	RIDDOR reference if applicable
		Select time period in which incident occurred		Select "yes" or "no"	Select group to which patient belongs	Select age group of patient or type in age	Select part of body injured	Select cause of injury	Select type of injury	Select "yes" or "no"	
Insert new rows above this row.											

SGSA
Sports Grounds Safety Authority

Application for a Licence to Admit Spectators Under Football Spectators Act 1989

Drop Down lists - for ref only

Medical and Injury - Summary

Submission Period
 Select period to which data relates
 Start of season to 31st January
 1st February to end of season

Detailed Injury Records

Time Period
 Select time period in which incident occurred
 Before match
 First half
 Half time
 Second half
 After match
 Unknown

Patient Group
 Select group to which patient belongs
 Spectator - home
 Spectator - away
 Catering staff
 Steward - agency
 Steward - directly employed
 Match Official
 Player - home
 Player - away
 Other member of ground staff
 Member of club staff
 Police
 Medical team
 Other emergency service
 Other
 Unknown

Age
 Select age group of patient or type in age
 5 and under
 6 yrs to 15 years
 16 yrs to 17yrs
 18 to 24 years
 25 to 59 years
 60 to 69 years
 Over 70
 Unknown

Part of body injured
 Select part of body injured
 Hand / finger
 Foot / toe
 Upper limb (not hand)
 Lower limb (not foot)
 Torso - back
 Torso - front
 Eye
 Head (not eye)
 Heart
 Unknown

Cause of injury
 Select cause of injury
 Pre-existing condition
 Turnstile
 Seat injury
 Slip / trip / fall
 Celebration
 Crowd surge / crushing
 Hit by football
 Hit by flare
 Hit by another object
 Burnt by flare
 Smoke inhalation from flare
 Pushed (accidental)
 Assault
 Other public order
 Structural collapse / failure
 Fire
 Insect bite / sting
 Hot drink / liquid spillage
 Kitchen equipment
 Equipment malfunction
 Faint not caused by any of above
 Other
 Unknown

Injury Presentation
 Select type of injury
 Cut / laceration / wound
 Bruise/ graze
 Dislocation
 Fracture
 Sprain / strain
 Head injury
 Burn
 Scald (liquid)
 Faint
 Concussion
 Breathing difficulty
 Heart attack
 Fit / Seizure
 Other Illness
 Other injury



Brighton & Hove Albion FC Aggregated Audit Form

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
	Date of incident	Name of Away Team at match	Time period in which injury occurred	Exact location of incident	Is this location inside the area covered by the safety certificate?	Was there Persistent Standing in this location?	Patient Group	Age	Cause	Part of body affected	Presentation	Was the patient taken to hospital?	RIDDOR if applicable	PRF No.
1														
2														
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														
13														
14														
15														
16														
17														
18														
19														

	A	B	C	D	E	F	G	H
21	Application for a Licence to Admit Spectators Under Football Spectators Act 1989							
22	Drop Down lists							
23	Medical and Injury - Summary							
24	Submission Period							
25	Select period to which data relates							
26	Start of season to 31st January							
27	1st February to end of season							
28	Detailed Injury Records							
29	Time Period	Age			Cause of injury		Injury Presentation	
30	Select time period in which incident occurred	Select age group of patient or type in age			Select cause of injury		Select type of injury	
31	Before match	5 and under			Pre-existing condition		Cut / laceration / wound	
32	First half	6 yrs to 15 years			Turnstile		Bruise/ graze	
33	Half time	16 yrs to 17yrs			Seat injury		Dislocation	
34	Second half	18 to 24 years			Slip / trip / fall		Fracture	
35	After match	25 to 59 years			Celebration		Sprain / strain	
36	Unknown	60 to 69 years			Crowd surge / crushing		Head injury	
37		Over 70			Hit by football		Burn	
38	Patient Group	Unkown			Hit by flare		Scald (liquid)	
39	Select group to which patient belongs							
40	Spectator - home				Hit by another object		Faint	
41	Spectator - away	Part of body injured			Burnt by flare		Concussion	
42	Catering staff	Select part of body injured			Smoke inhalation from flare		Breathing difficulty	
43	Steward - agency	Hand / finger			Pushed (accidental)		Heart attack	
44	Steward - directly employed	Foot / toe			Assault		Fit / Seizure	
45	Match Official	Upper limb (not hand)			Other public order		Other Illness	
46	Player - home	Lower limb (not foot)			Structural collapse / failure		Other injury	
47	Player - away	Torso - back			Fire			
48	Other member of group	Torso - front			Insect bite / sting			
49	Member of club staff	Eye			Hot drink / liquid spillage			
50	Police	Head (not eye)			Kitchen equipment			
51	Medical team	Heart			Equipment malfunction			
52	Other emergency services	Unknown			Faint not caused by any of above			
53	Other				Other			
54					Unknown			
55								

This aggregated audit form is presented in the format of an electronic spreadsheet. The column headings read:

- A – Date of Incident
- B – Name of Away Team at Match
- C – Time period in which injury occurred
- D – Exact location of incident



E – Is this location inside the area covered by the safety certificate?

F – Was there Persistent standing in this location?

G – Patient Group

H – Age

I – Cause

J – Part of body affected

K – Presentation

L – Was the patient taken to hospital?

M – RIDDOR if applicable

N – PRF No.

St John Ambulance Patient Report Form

(Note: This form was used by St John Ambulance volunteers at all of the English clubs visited during this project that utilise St John Ambulance medical resources. It is included in the Brighton & Hove Albion FC section as the form was first encountered at this club, but this form is also used at Manchester City FC, Manchester United FC, Everton FC and Newcastle United FC).



PATIENT REPORT FORM

Fill in form using black ink and block capitals and

PRF 935915

5

REGION N E L&S W A/O Other DATE DDMMYYYY

EVENT NUMBER/NAME

Time of first contact HHMM Participant Staff/contractor Public SJA personnel

First name

Surname

D.o.B. DDMMYYYY Does the patient have capacity? Yes No

If no or under 18 Was consent obtained? Yes No From whom?

Discharged to care of responsible adult? Yes No

SECTION A: MINOR treatments record

Treated for: Bites/stings Splinter/thorn Foreign Body Hayfever/allergy
 Headache Bruising Swelling Blister
 Minor burn Sunburn Wound
 Treatment given: Wound cleaned Adhesive dressing Wound dressed Hydration given
 Ice pack Self care advice given Rest/observation None

Other:

Known allergies

Was any medication given? Yes No If yes, please complete the table below

	Dose	Time	Batch no	Expiry date	Given by
Paracetamol		HHMM		MMYY	
Ibuprofen		HHMM		MMYY	
Loratadine		HHMM		MMYY	

(If any other medications or treatment were given, part B of the form should also be completed to explain the reasons)

Treated by
 D no./print name Signature Role
 Time left St John care HHMM

SECTION B: To be completed if the patient requires more than "minor" treatment

PRIMARY SURVEY

Time completed HHMM

Response	Airway	Breathing	Circulation
<input checked="" type="checkbox"/> Alert	<input checked="" type="checkbox"/> Clear	<input checked="" type="checkbox"/> Normal	<input checked="" type="checkbox"/> Normal
<input checked="" type="checkbox"/> Voice	<input checked="" type="checkbox"/> Obstructed	<input checked="" type="checkbox"/> Abnormal	<input checked="" type="checkbox"/> Pale
<input checked="" type="checkbox"/> Pain		<input checked="" type="checkbox"/> Absent	<input checked="" type="checkbox"/> Flushed
<input checked="" type="checkbox"/> Unresponsive			<input checked="" type="checkbox"/> Cyanosed

Lost consciousness Yes No

FAST test Negative Positive Onset time HHMM

Past Medical History including any regular medication

Presenting complaint

Airway issue <input checked="" type="checkbox"/>	Burn <input checked="" type="checkbox"/>
Alcohol/Drugs <input checked="" type="checkbox"/>	Chest pain <input checked="" type="checkbox"/>
Back/neck pain <input checked="" type="checkbox"/>	Head injury <input checked="" type="checkbox"/>
Bleeding <input checked="" type="checkbox"/>	Fever <input checked="" type="checkbox"/>
Breathing problems <input checked="" type="checkbox"/>	Fracture/dislocation <input checked="" type="checkbox"/>
Other	



Cardiff City FC

Individual Audit Form



EVENT PATIENT REPORT FORM

Date: _____ P.R.F. No.: _____

Name of Visiting Team: _____

Time Period in which Injury Occurred i.e. Before Match / Half Time / During Match / End of Match

Exact Location of Incident: _____

Was there Persistent Standing in this Location: YES / NO

Patient Group: i.e. Member of Public / Staff / Catering Staff / Other

Age of Patient: _____

Part of Body Injured: _____

Cause of Injury: _____

Type of Injury: _____

Patient Taken to Hospital: YES / NO

Riddor Ref. No.: (If Applicable) _____



Everton FC

Individual Audit Form

MATCHDAY ACCIDENT INCIDENT REPORT EVERTON v



1. ABOUT THE PERSON | WHO HAD THE ACCIDENT / INCIDENT

Patient's Full Name and Home Address Patient Signature

Patient Group: Spectator – Home Spectator – Away EFC Staff Catering Staff
 (Tick one box only) Steward – Agency Steward – EFC Other Unknown

If patient is a spectator, please provide seat details:

Age Group: 0 – 18 years 19 – 30 years 31 – 59 years 60 years and over Unknown
 (Tick one box only)

2. ABOUT THE ACCIDENT / INCIDENT | CAUSE / TYPE OF INJURY

Cause of Injury: Pre-existing condition Hit by flare Fire
 Turnstile Burnt by flare Allergic reaction
 Seat Injury Smoke inhalation Hot drink / liquid spill
 Slip/Trip/Fall Pushed accidentally Kitchen equipment
 Celebration Assault Faint (not caused by any listed)
 Crowd Surge / Crushing Other public order Unknown
 Hit by football Structural collapse / failure Other (please indicate below)

Type of Injury: Cut / laceration / wound Bruise / graze Dislocation Fracture
 Sprain / Strain Head Injury Burn Scold (liquid)
 Faint Concussion Breathing difficulty Heart attack
 Fit / Seizure Other
 (please indicate)

3. ABOUT THE ACCIDENT / INCIDENT | WHAT HAPPENED / LOCATION / TREATMENT

Exact location of Accident / Incident:

Details of Accident / Incident:

Details of Treatment Administered:

4. ABOUT YOU | PERSON COMPLETING THE FORM

Print Name: Occupation:

Signature: Date:

5. EMPLOYERS STATEMENT

• If the accident is reportable under RIDDOR, record the date and method used when first advising the relevant enforcing authority
 • Initial the box provided

Reporting of Injuries, Diseases and Dangerous Occurrences Regulations

Method: Employers initials:

Comments: Date:
 (Continue overleaf if required)

6. Remove this form from the book now and write the date on the counterfoil. Pass the form to the person responsible for health and safety in the workplace (their name should be on the front of this book), who together with the injured person's manager are the only members of staff who may view this report unless the injured person gives their permission.



Manchester City FC

Individual Audit Form (used by Crowd Doctor)

Manchester City Football Club		
Patient Record Form		
Fixture	Date	Time
Name	DOB	Age
Address	aisle	Male <input type="checkbox"/>
	row	
	Seat	
Injury <input type="checkbox"/>	Spectator <input type="checkbox"/>	Injury on MCFC property?
Illness <input type="checkbox"/>	Staff <input type="checkbox"/>	(If yes please give full details of mechanism & location in HPC)
PC		Pre existing complaint? If yes please give details
HPC		
PMH	DH	

Examination	Diagnosis
	Plan

Time							
BP							
HR							
SaO2							
GCS							
BM							
Temp							
Cap Refill							

Medication	Dose	Time	Prescribed by	Checked By



Allergies

Treatment given	Advice offered
-----------------	----------------

Signature	Print Name
	GMC/NMC



Individual Audit Form (NWAS)

		North West Ambulance Service  <small>NHS Trust</small>	
Date	<input type="text"/>	Event	<input type="text"/>
Incident No	<input type="text"/>	Initial report of	<input type="text"/>
Seat No	<input type="text"/>	Location of Incident	<input type="text"/>
Row No	<input type="text"/>	F.A.R used	<input type="text"/> Hospital <input type="text"/>
Block No	<input type="text"/>	Pt Age	<input type="text"/> Seen by NWAS <input type="text"/>
D.O.B.	<input type="text"/>	Pt sex	<input type="text"/> Med Team <input type="text"/>
Time of Inc	<input type="text"/>	SJAB No	<input type="text"/> St John <input type="text"/>
Patient Initials	<input type="text"/>	Staff or Public	<input type="text"/> staff work location <input type="text"/>
Comments and patient update	<input type="text"/>		MCFC log No
			<input type="text"/>
Incident No	<input type="text"/>	Initial report of	<input type="text"/>
Seat No	<input type="text"/>	Location of Incident	<input type="text"/>
Row No	<input type="text"/>	F.A.R used	<input type="text"/> Hospital <input type="text"/>
Block No	<input type="text"/>	Pt Age	<input type="text"/> Seen by NWAS <input type="text"/>
D.O.B.	<input type="text"/>	Pt sex	<input type="text"/> Med Team <input type="text"/>
Time of Inc	<input type="text"/>	SJAB No	<input type="text"/> St John <input type="text"/>
Patient Initials	<input type="text"/>	Staff or Public	<input type="text"/> staff work location <input type="text"/>
Comments and patient update	<input type="text"/>		MCFC log No
			<input type="text"/>
		Page	of



Newcastle United FC

Aggregated Audit Form

Newcastle United Football Club
Match Day Medical Injury/Illness/Incident Report

Date	Fixture
6/4/19	Crystal Palace

NUFC Medical Incident Number	Time (24hr)	Person Injured (Spectator-home/away, Club Employee, Match Official etc)	Exact Location of Incident (Stand, access, seat, etc)	Nature of Injury/Illness	Cause of Incident	Details of Treatment Provided and location of treatment	Treatment Provider (SJA, NEAS, CD)	Hospital (Yes/No)

The columns headings read:

A – NUFC Medical Incident Number

B – Time (24hr)

C – Person Injured (Spectator-home/away, Club Employee, Match Official etc.)

D – Exact Location of Incident (Stand, access, seat, etc.)

E – Nature of Injury/Illness

F – Cause of Incident

G – Details of Treatment Provided and location of treatment

H – Treatment Provider (SJA, NEAS, CD)

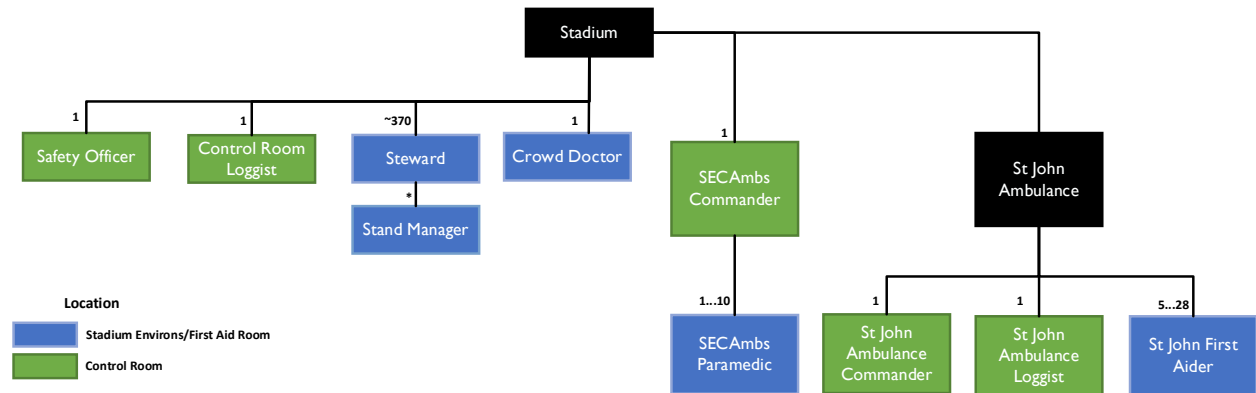
I – Hospital (Yes/No)



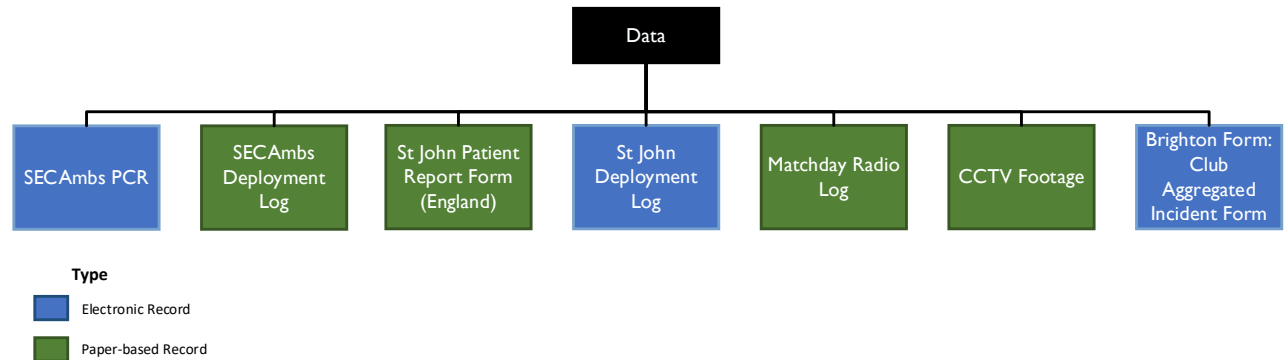
Appendix C – Spectator Injury Data Collection Processes at Premier League Football Clubs

Brighton & Hove Albion FC

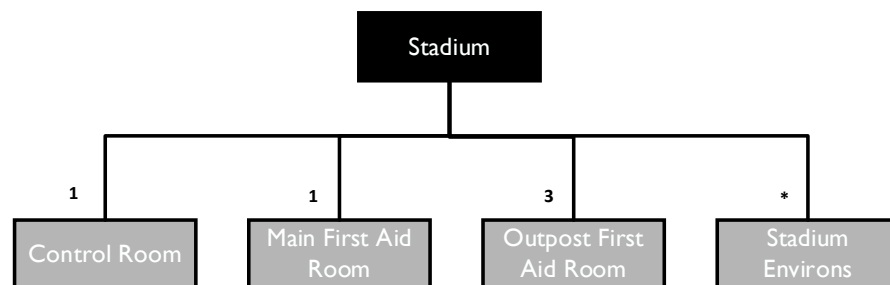
Medical Resources Available



Medical Data Collected

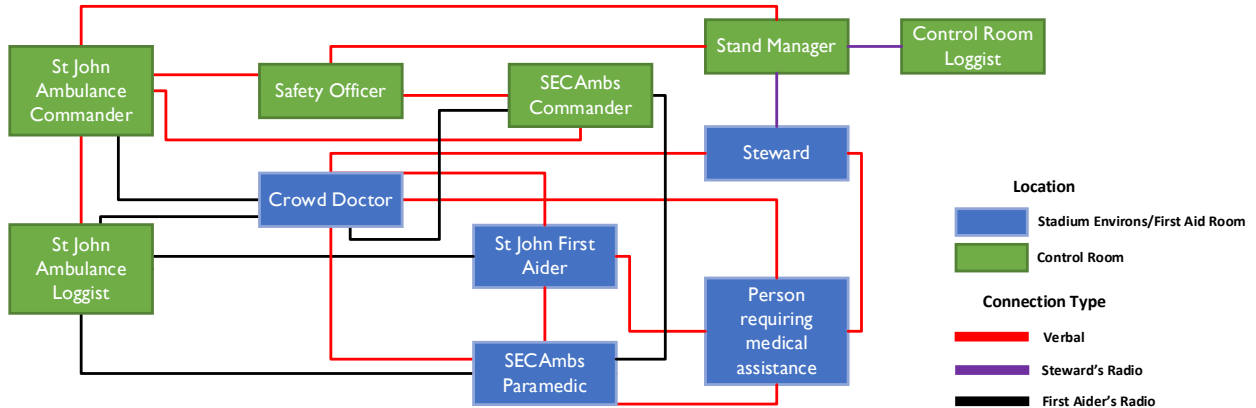


Relevant Locations within Ground

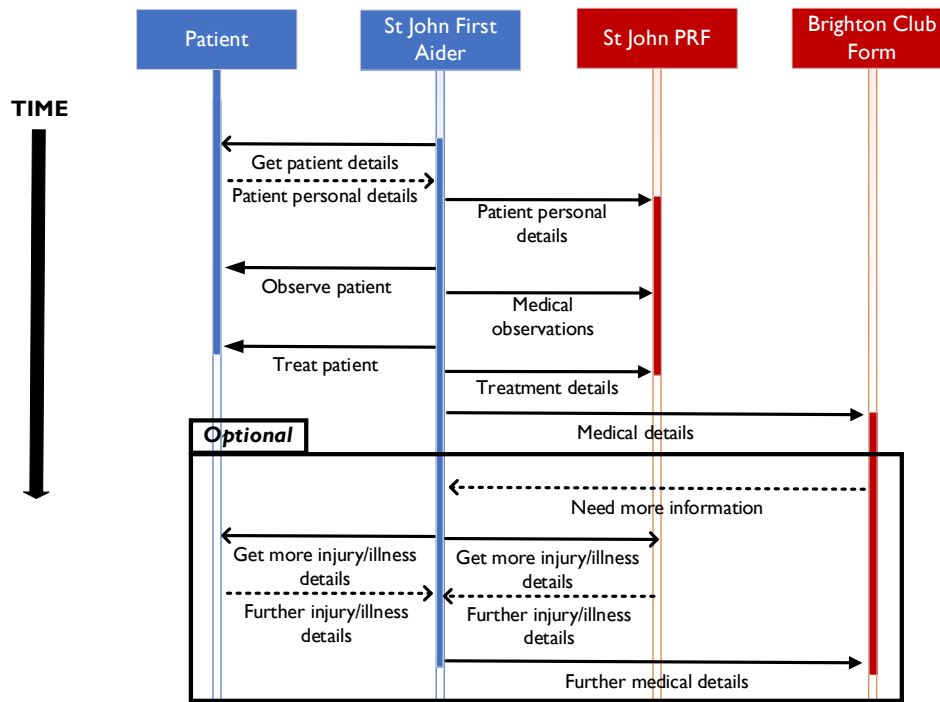




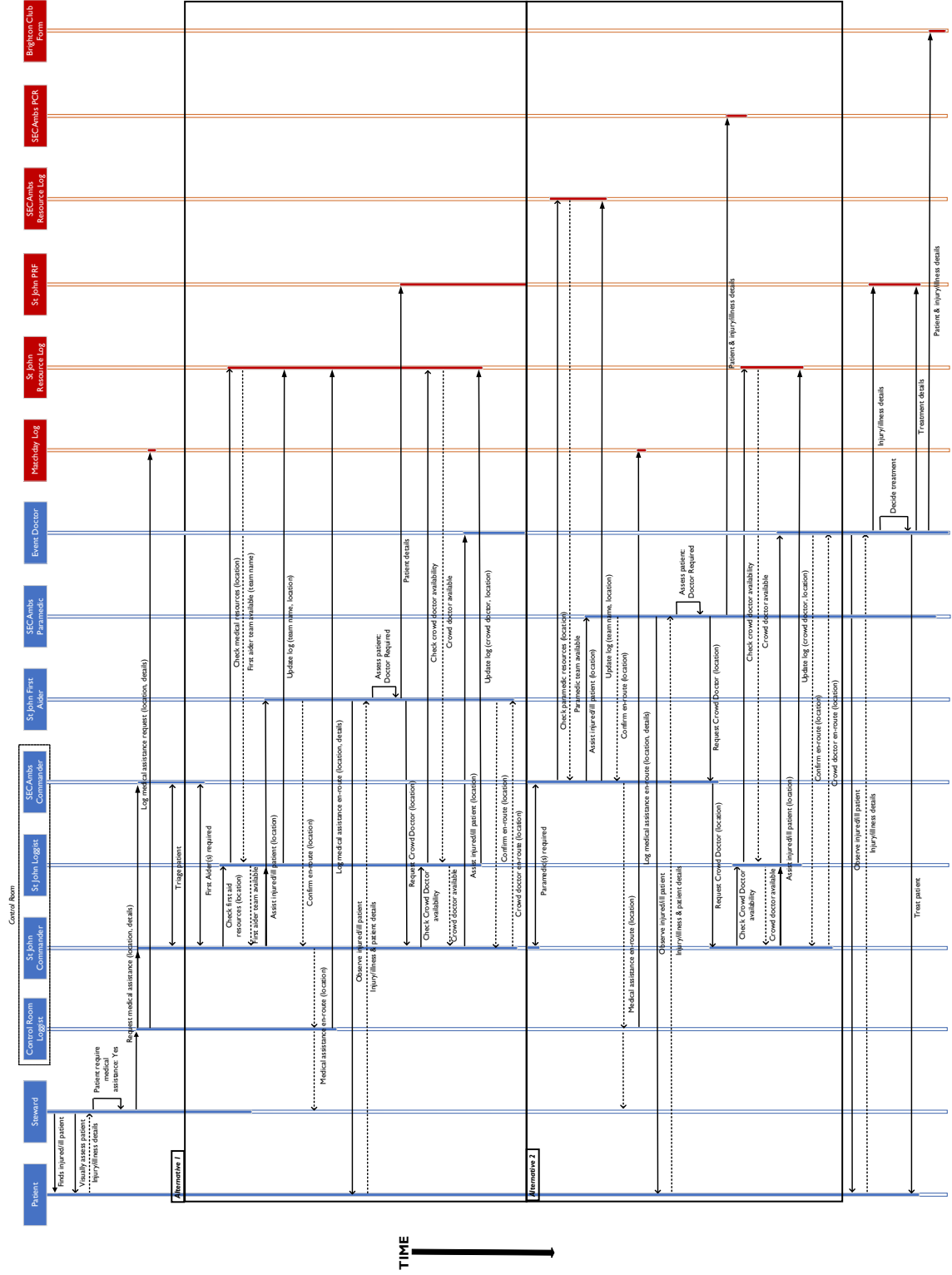
Medical Team Communication Methods



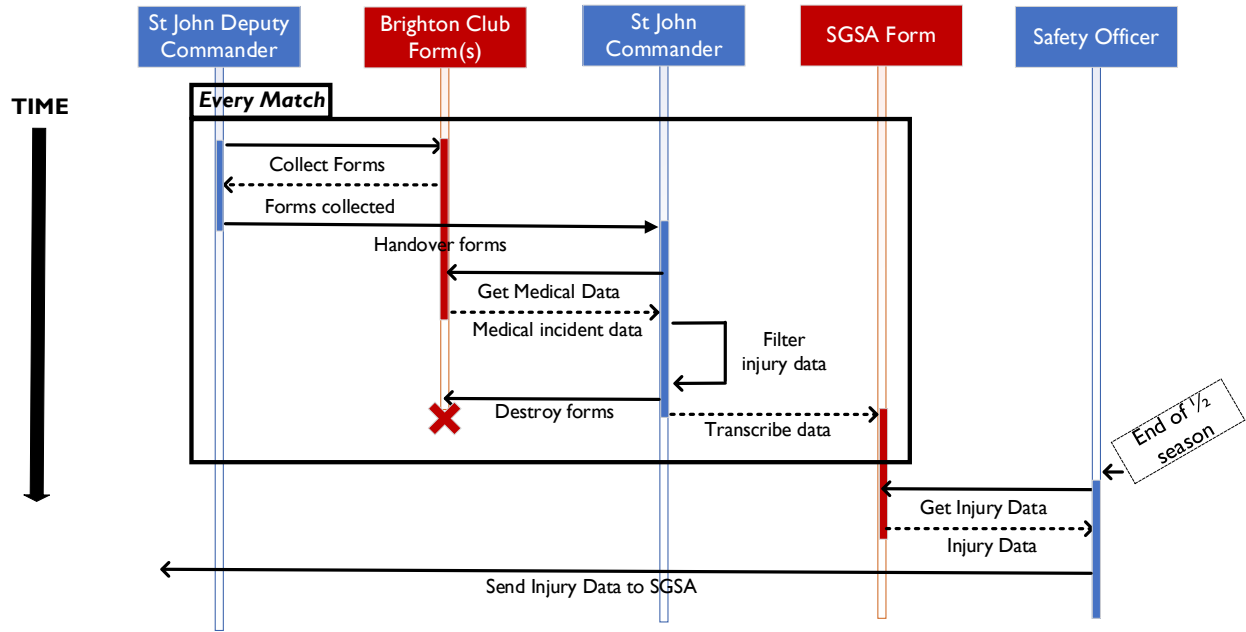
Data Collection Process 1 – Minor Injury



Data Collection Process 2 – More Severe Injury



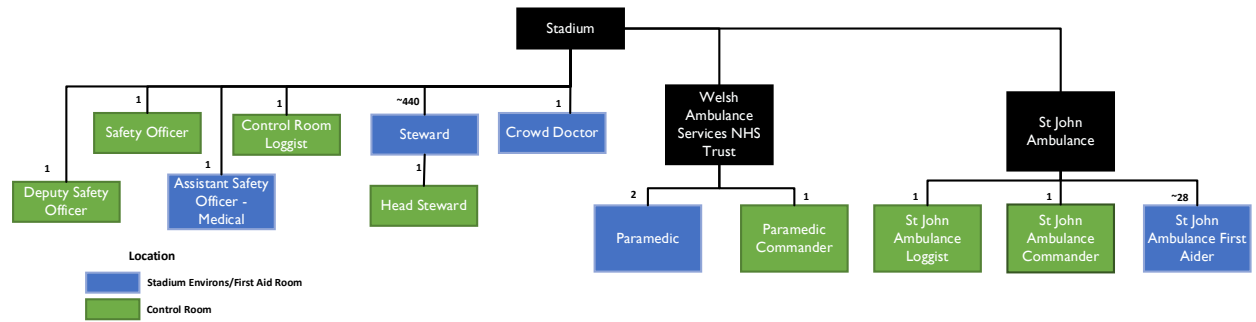
Data Aggregation and Submission to the SGSA



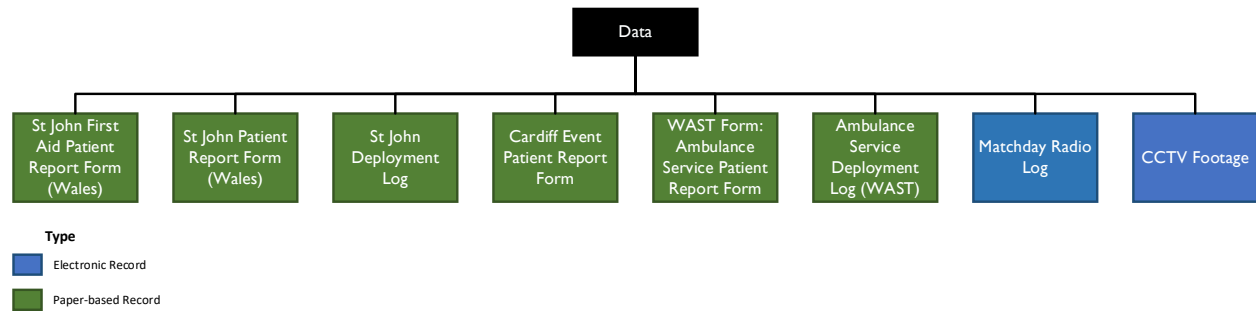


Cardiff City FC

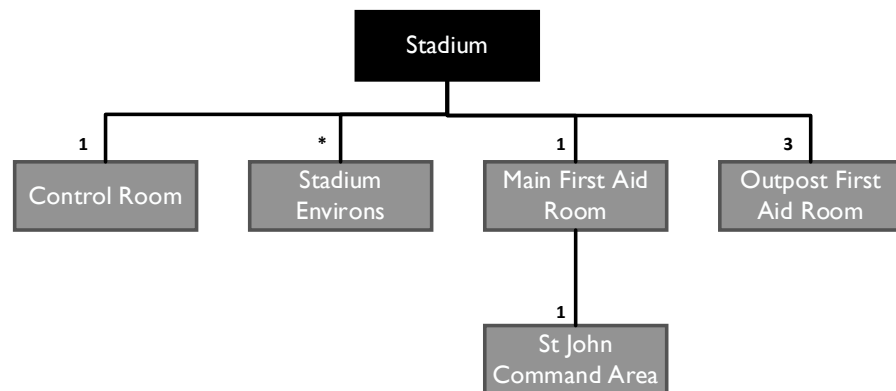
Medical Resources Available



Medical Data Collected

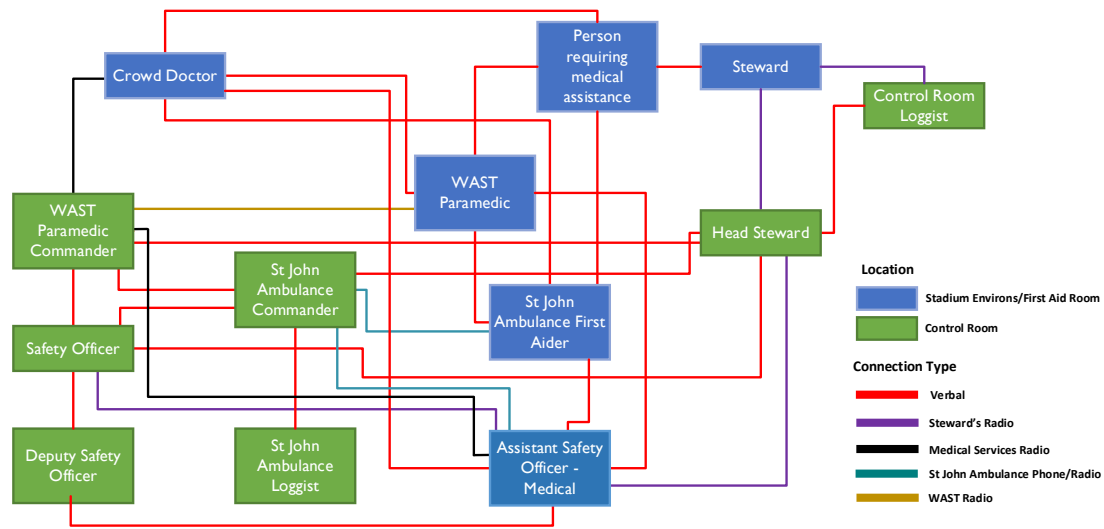


Relevant Locations within Ground

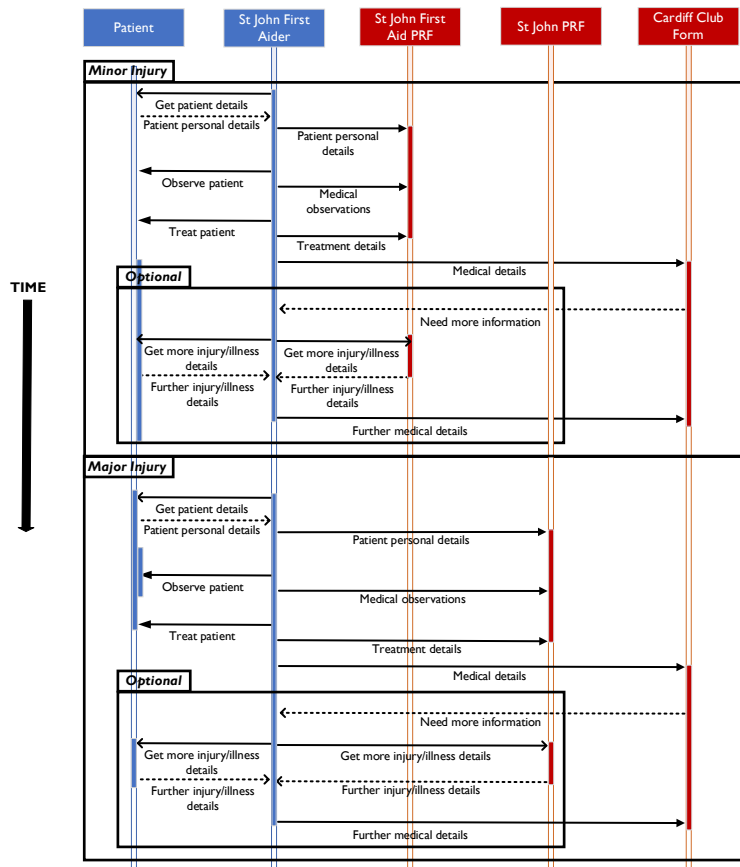




Medical Team Communication Methods

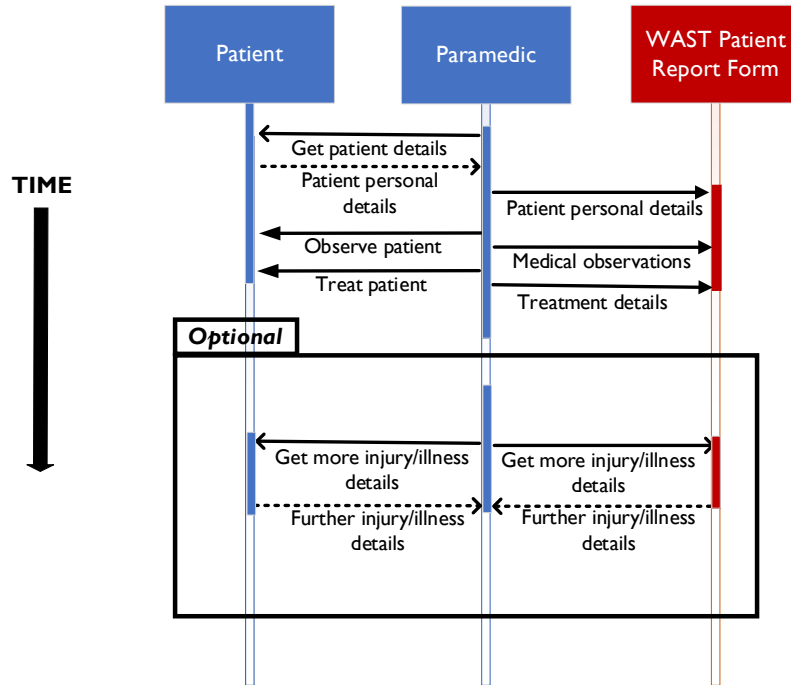


Data Collection Process – Treatment by First Aider(s)

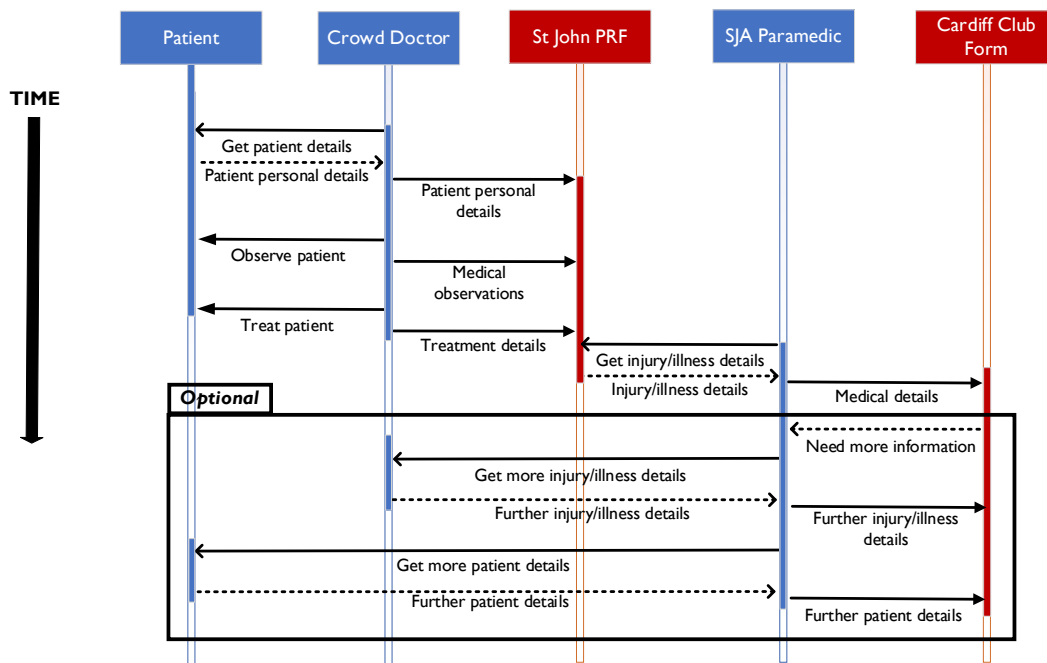




Data Collection Process – Treatment by Paramedic(s)

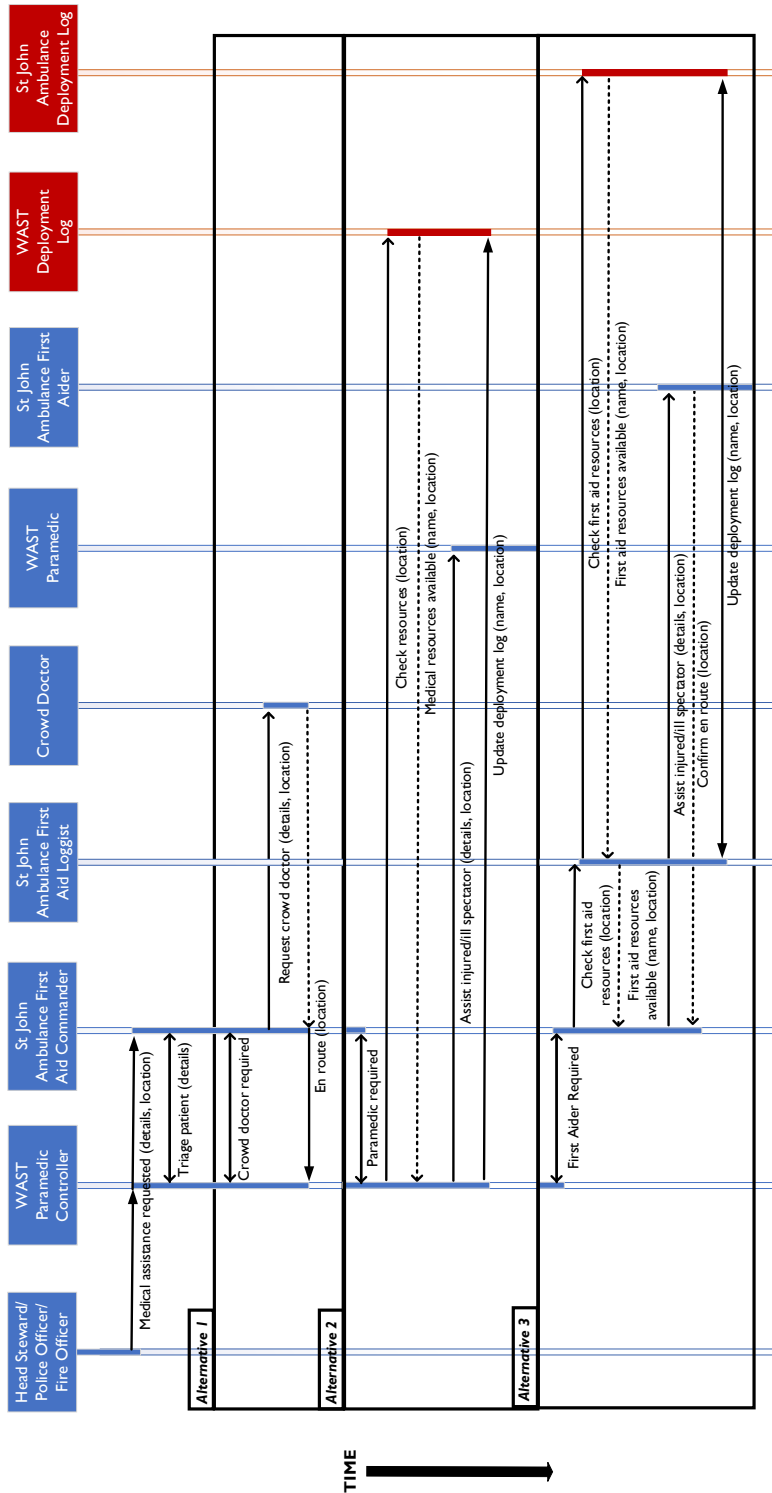


Data Collection Process – Treatment by Crowd Doctor



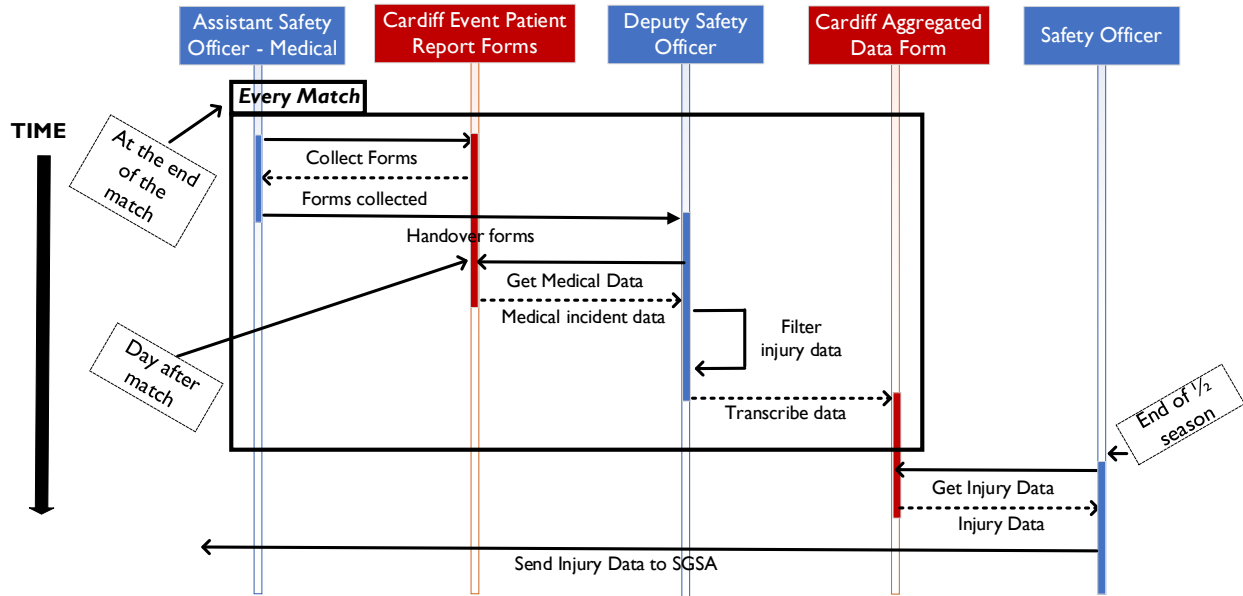


Data Collection Process – Medical Team Resource Deployment





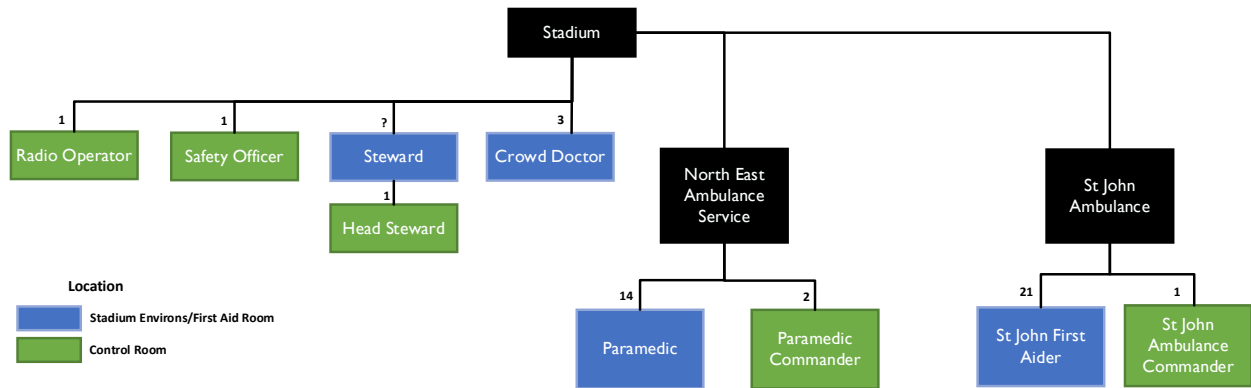
Data Aggregation and Submission to the SGSA



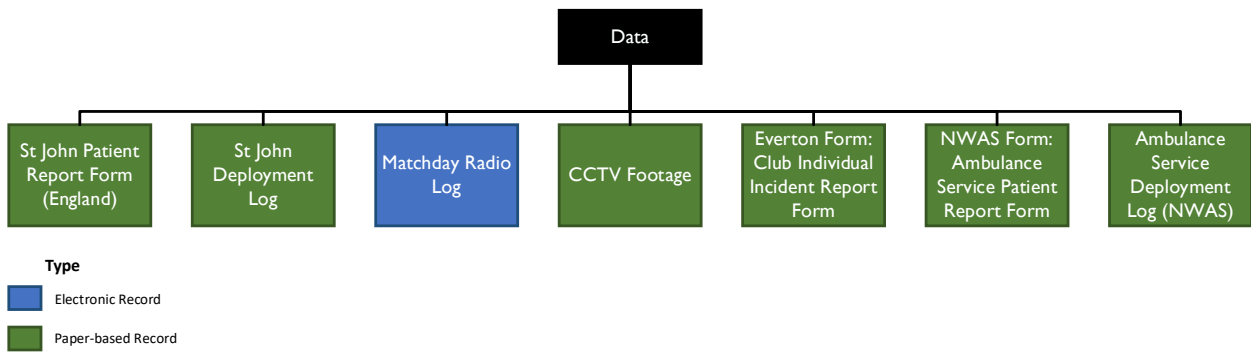


Everton FC

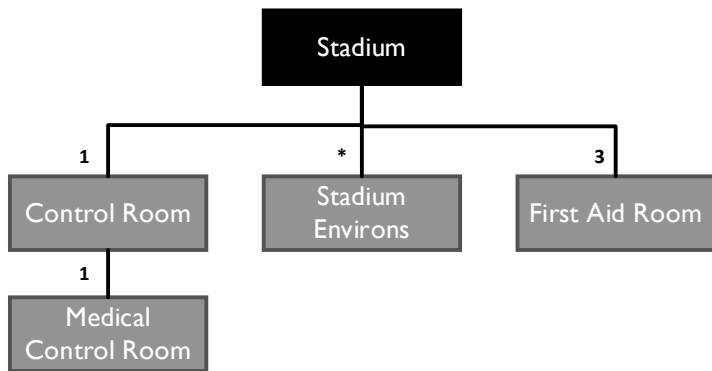
Medical Resources Available



Medical Data Collected

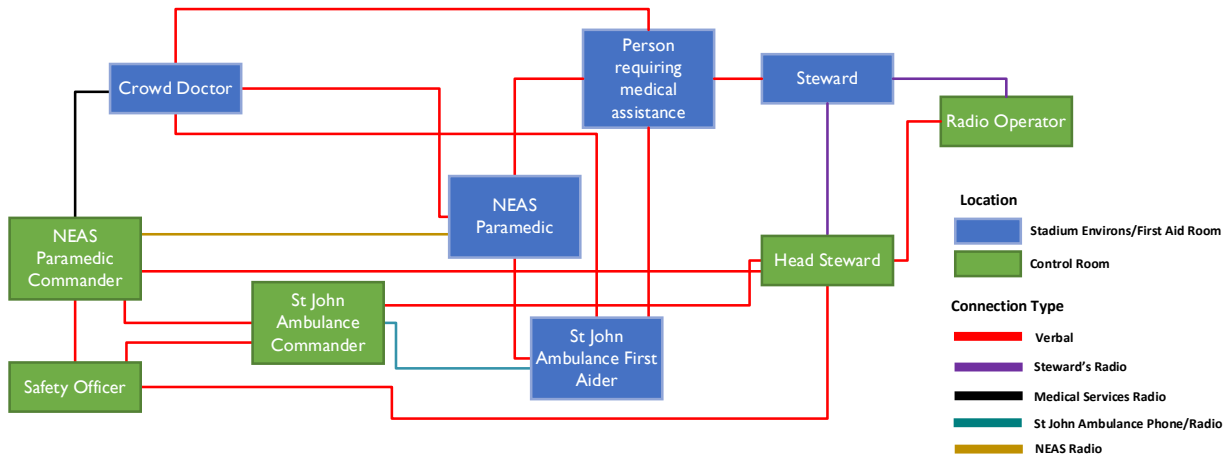


Relevant Locations within Ground

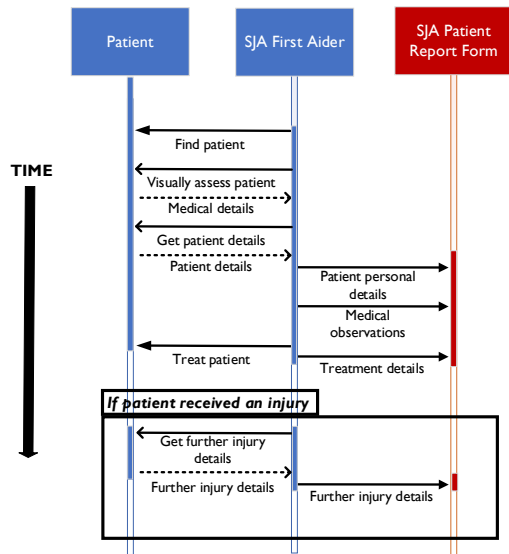




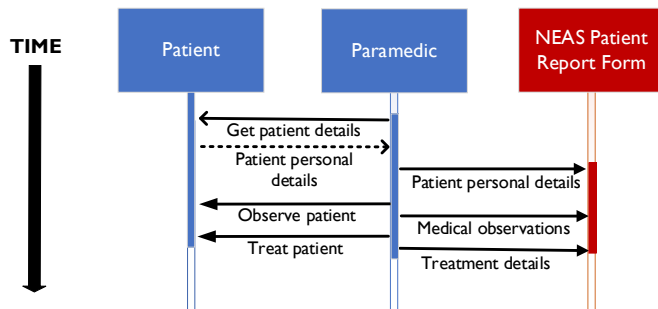
Medical Team Communication Methods



Data Collection – Treatment by First Aider(s)

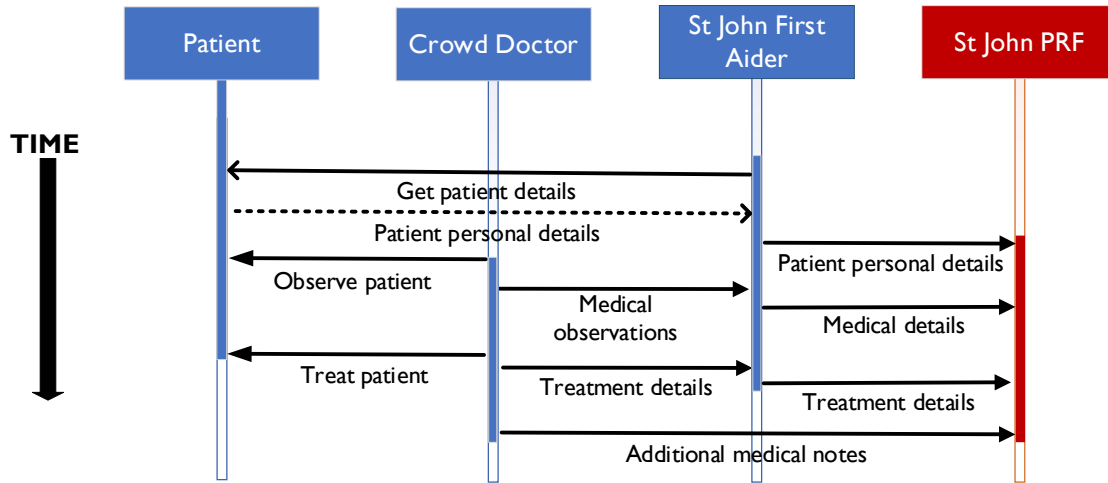


Data Collection – Treatment by Paramedic(s)

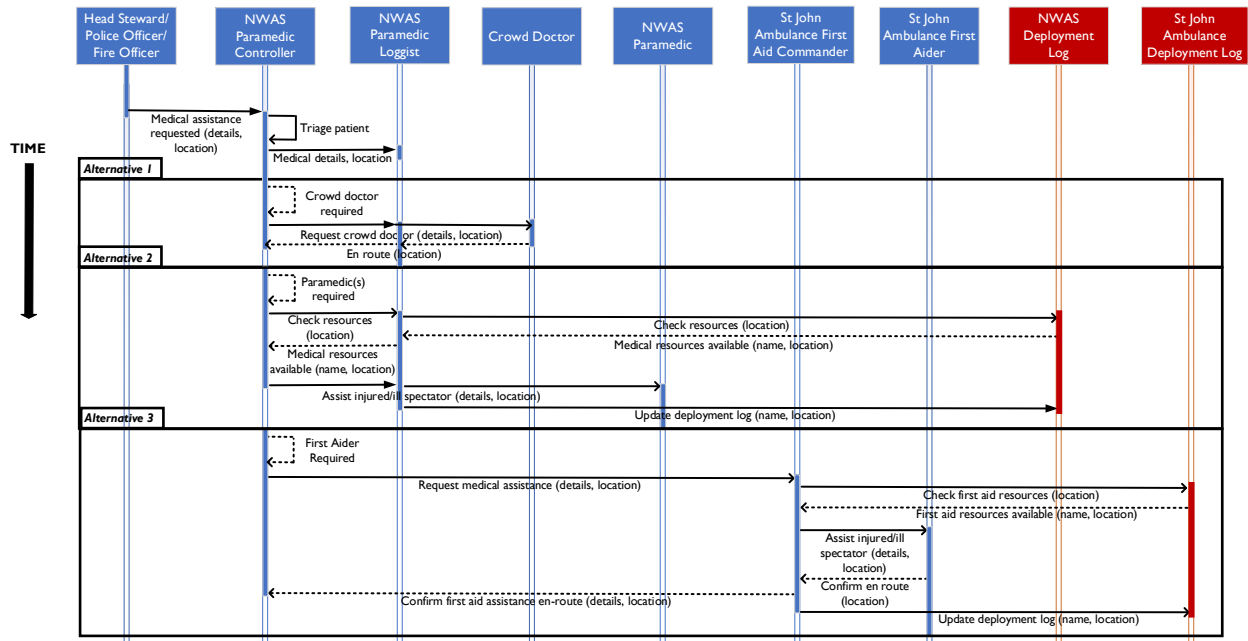




Data Collection – Treatment by Crowd Doctor

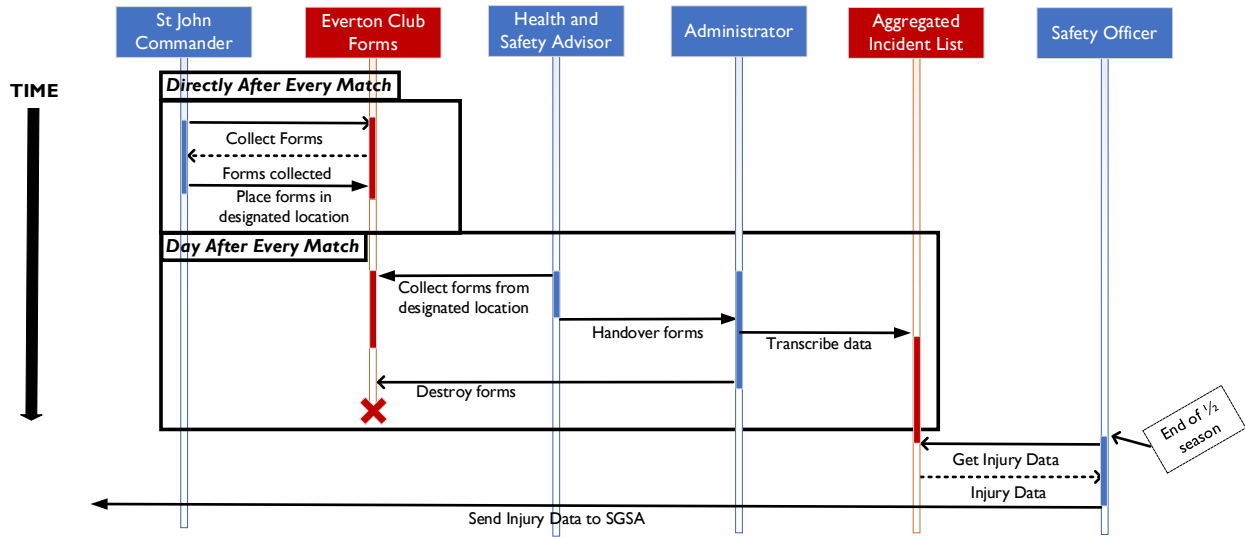


Medical Resource Deployment





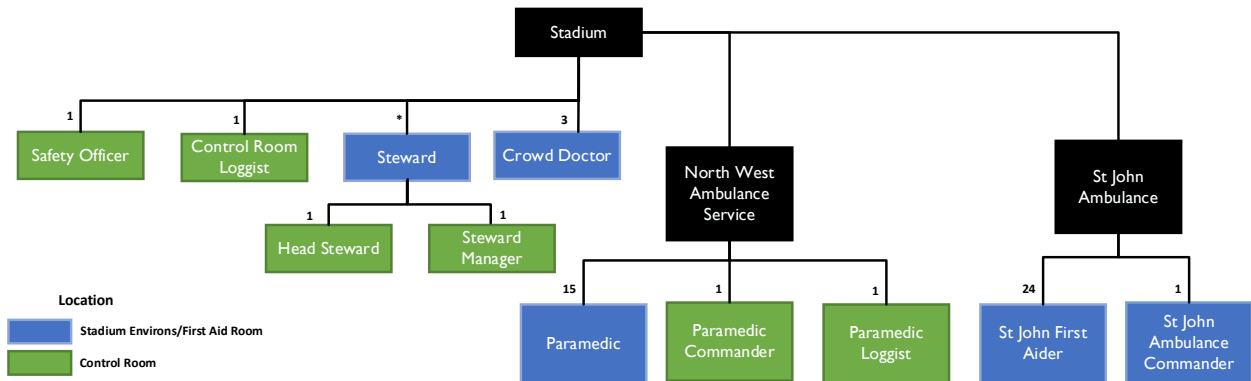
Data Aggregation and Submission to SGSA



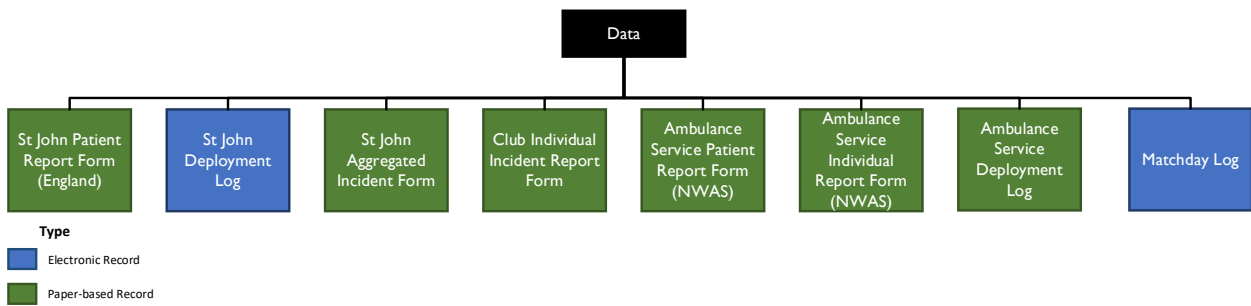


Manchester City FC

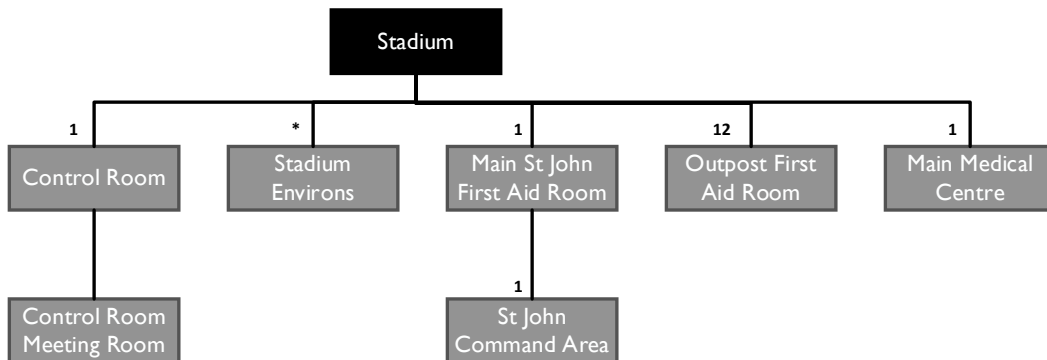
Medical Resources Available



Medical Data Collected

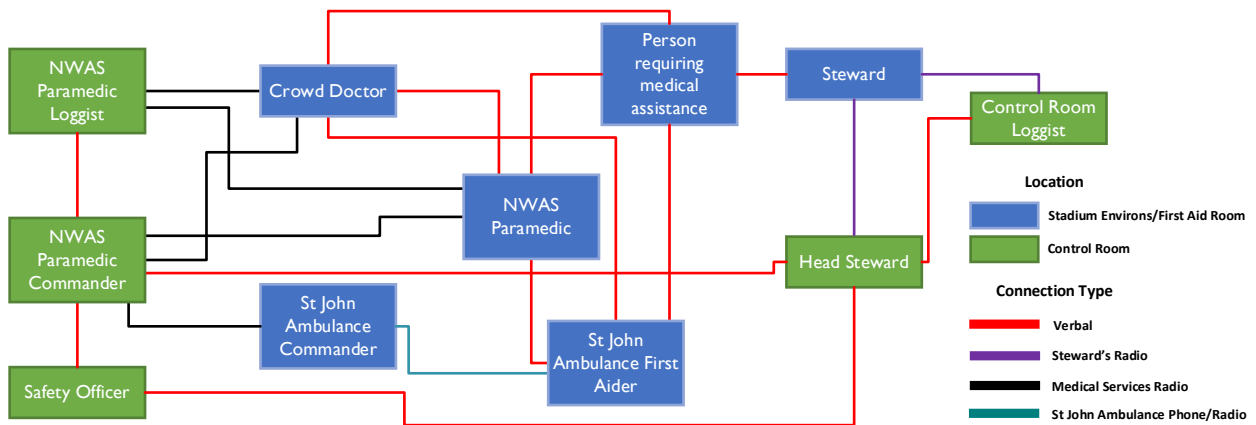


Relevant Locations within Ground

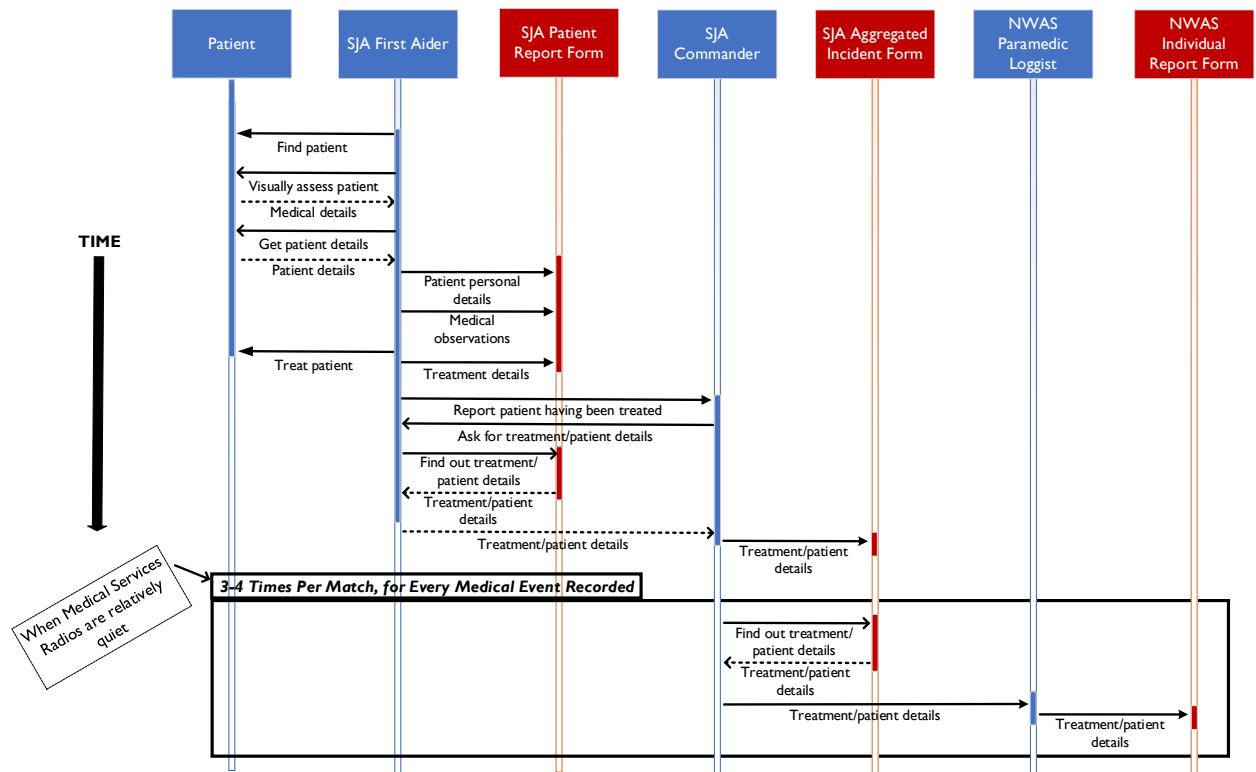




Medical Team Communication Methods

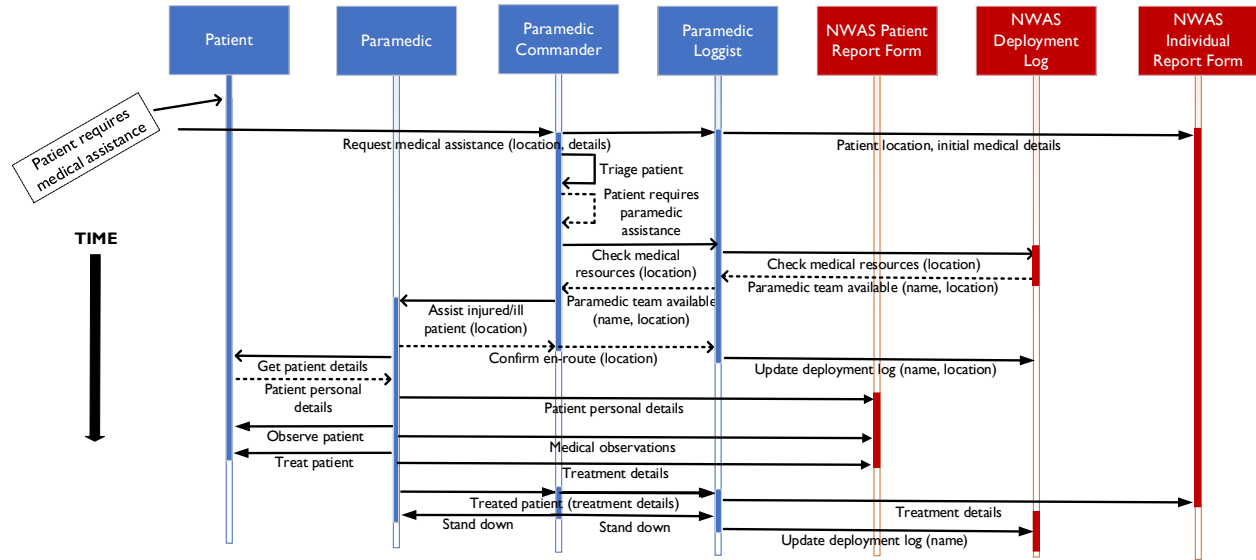


Data Collection – Treatment by First Aider(s)

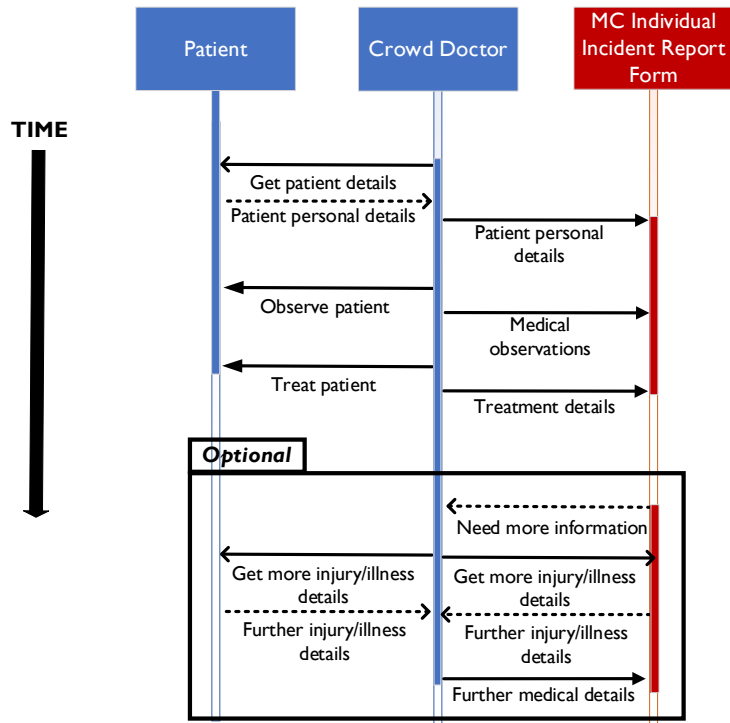




Data Collection – Treatment by Paramedic(s)

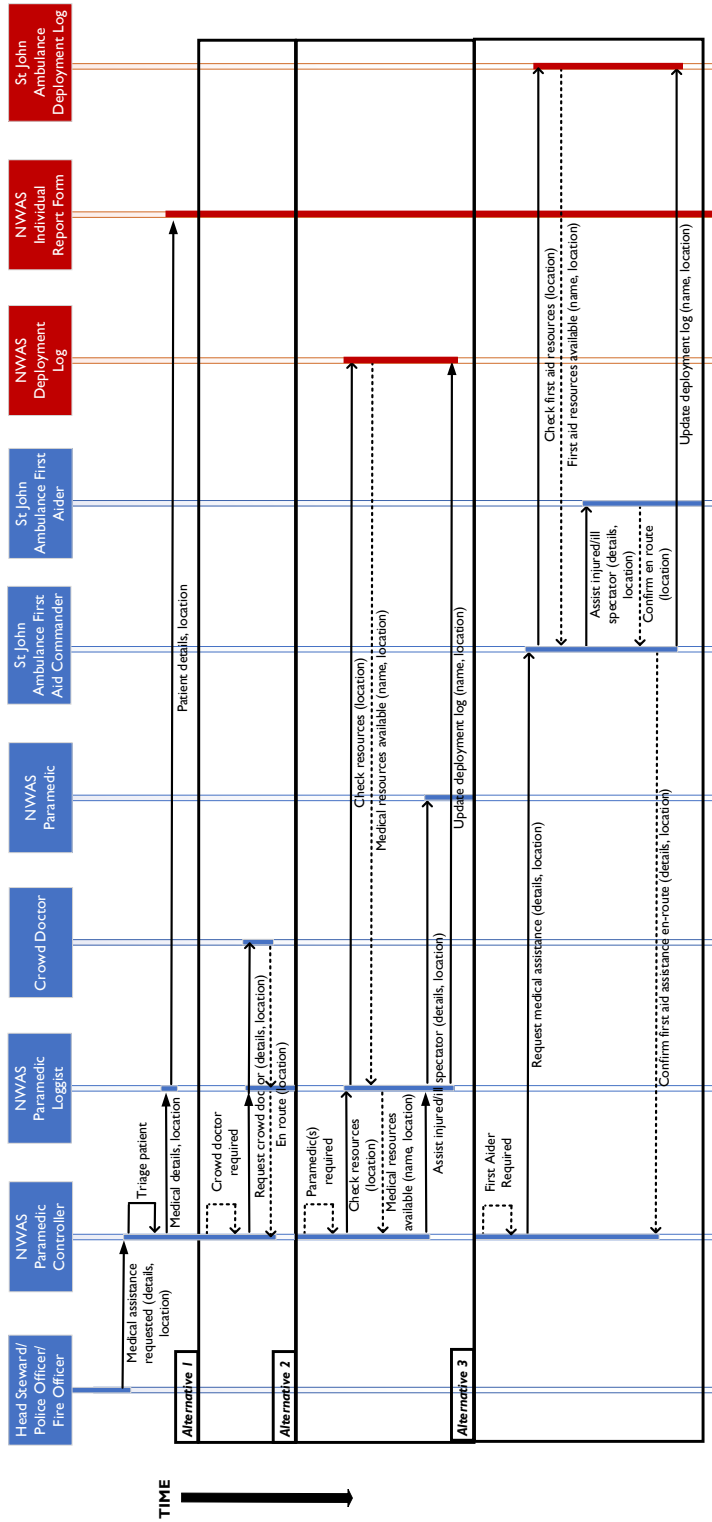


Data Collection – Treatment by Crowd Doctor



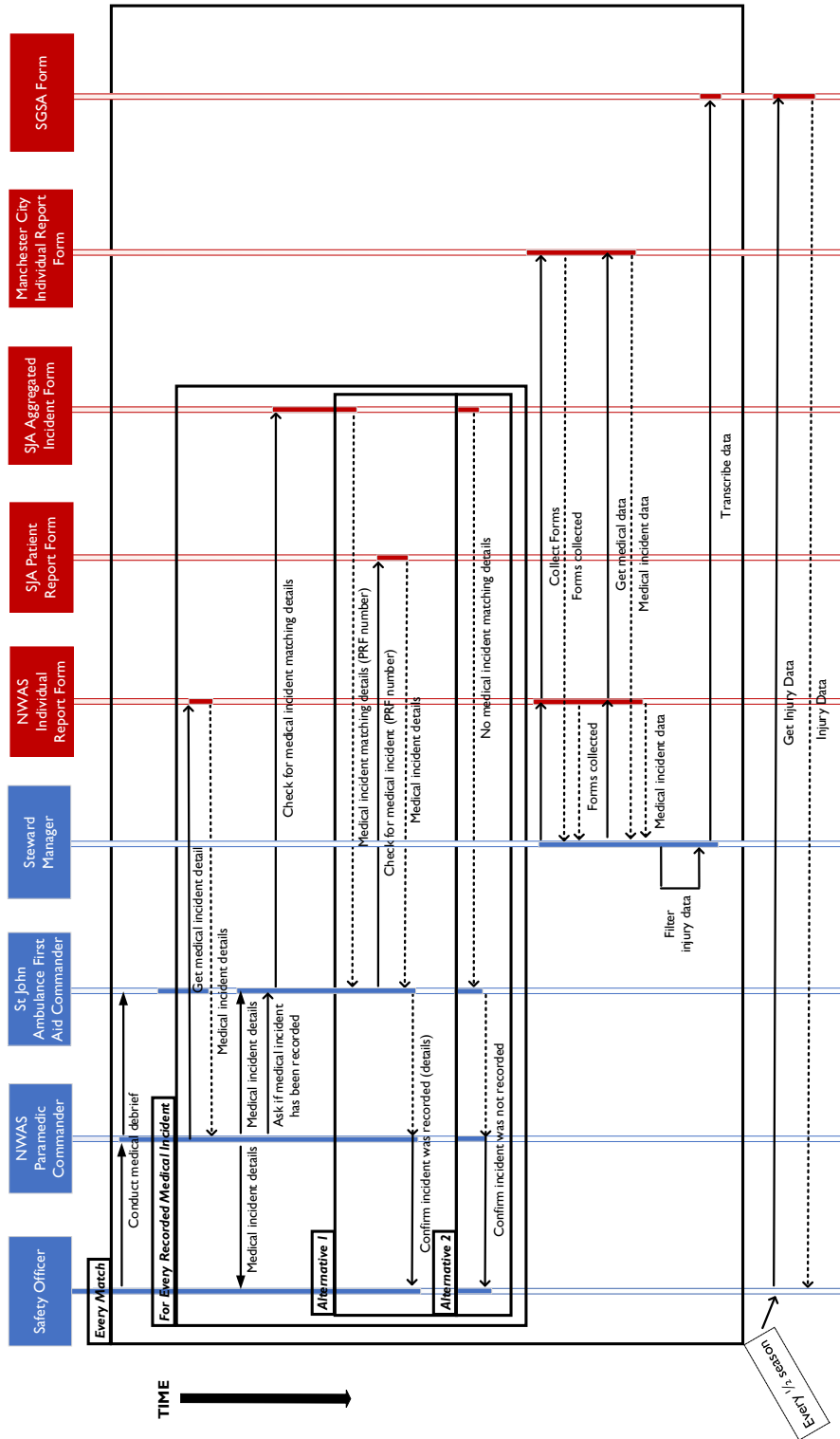


Medical Resource Deployment





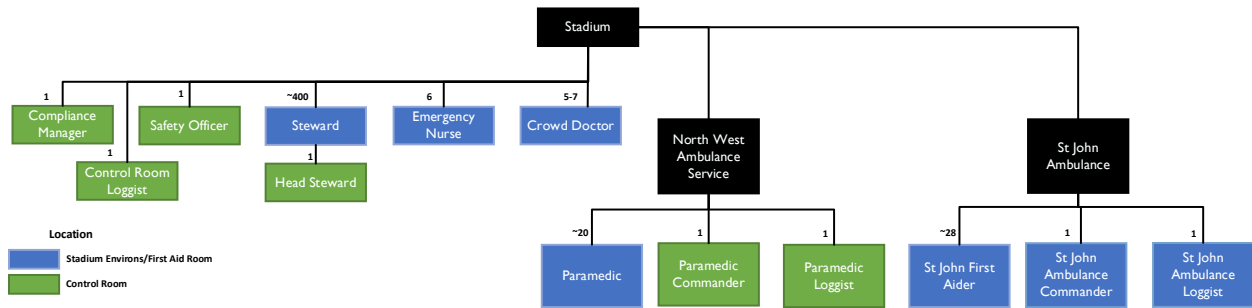
Data Aggregation and Submission to the SGSA



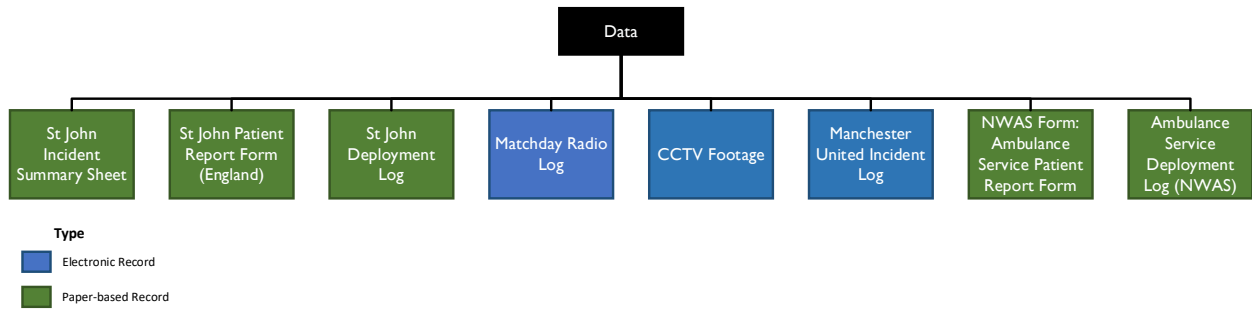


Manchester United FC

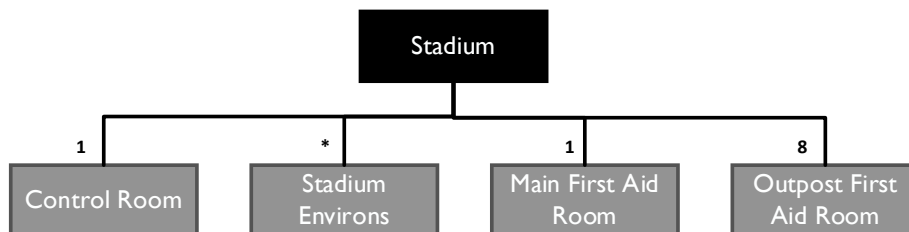
Medical Resources Available



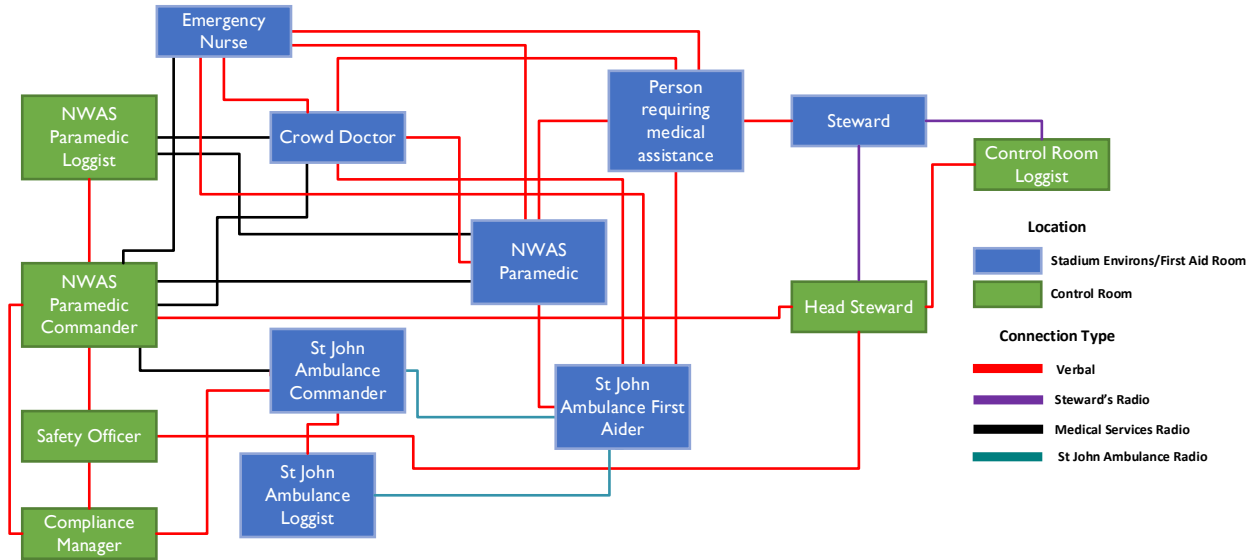
Medical Data Collected



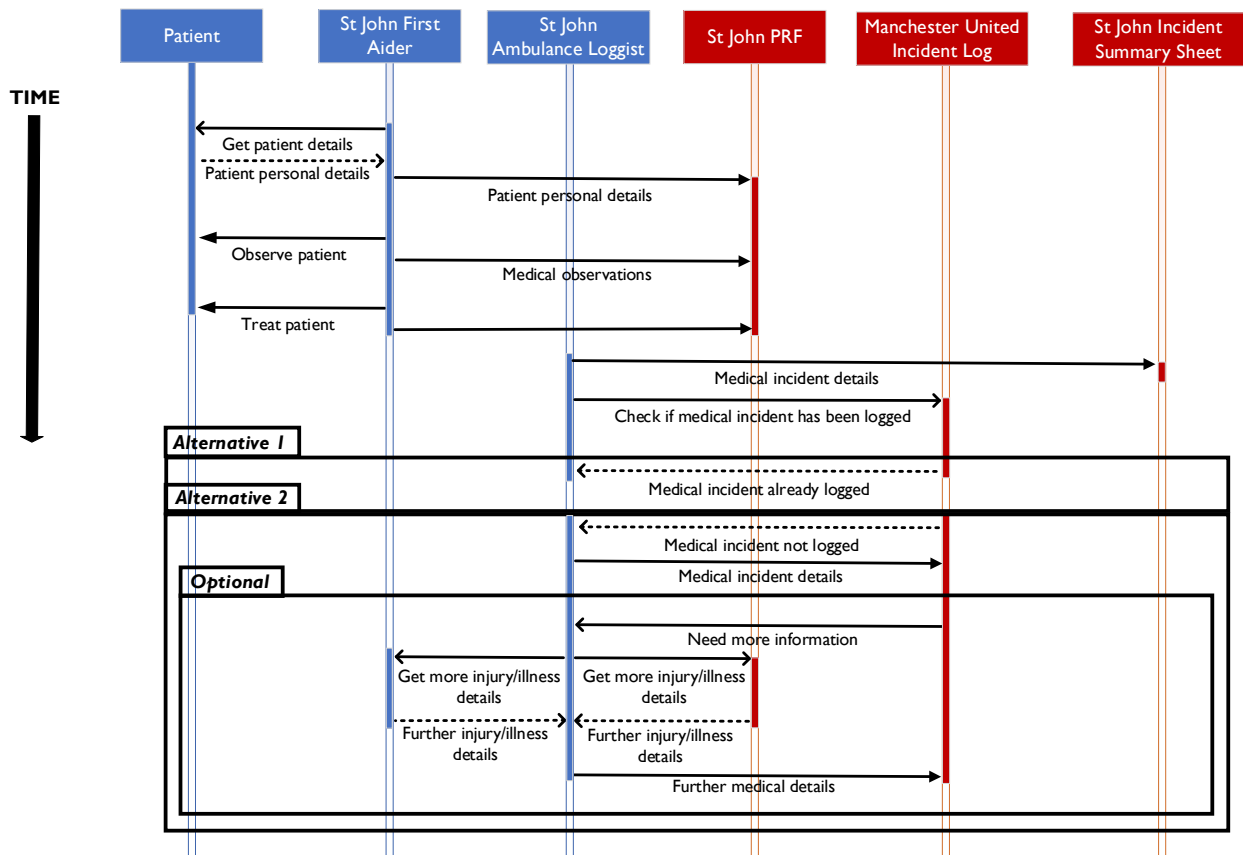
Relevant Locations within Ground



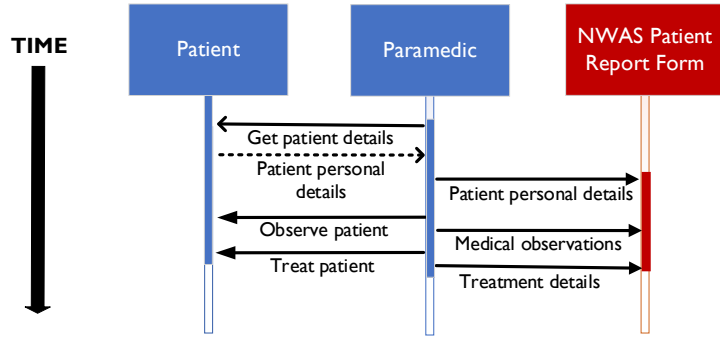
Medical Team Communication Methods



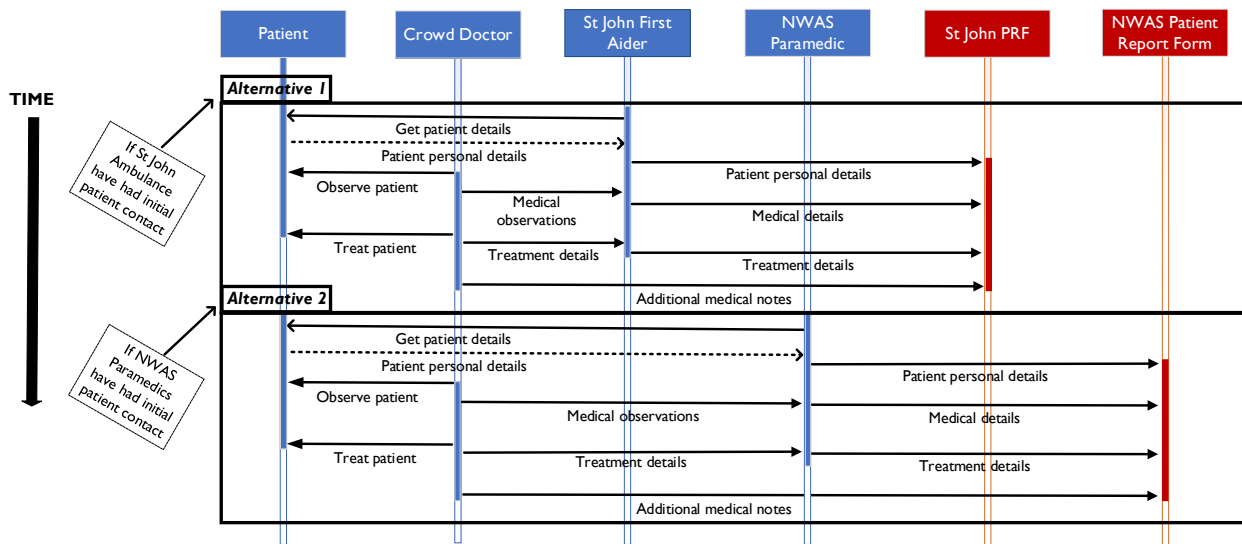
Data Collection Process – First Aider(s)



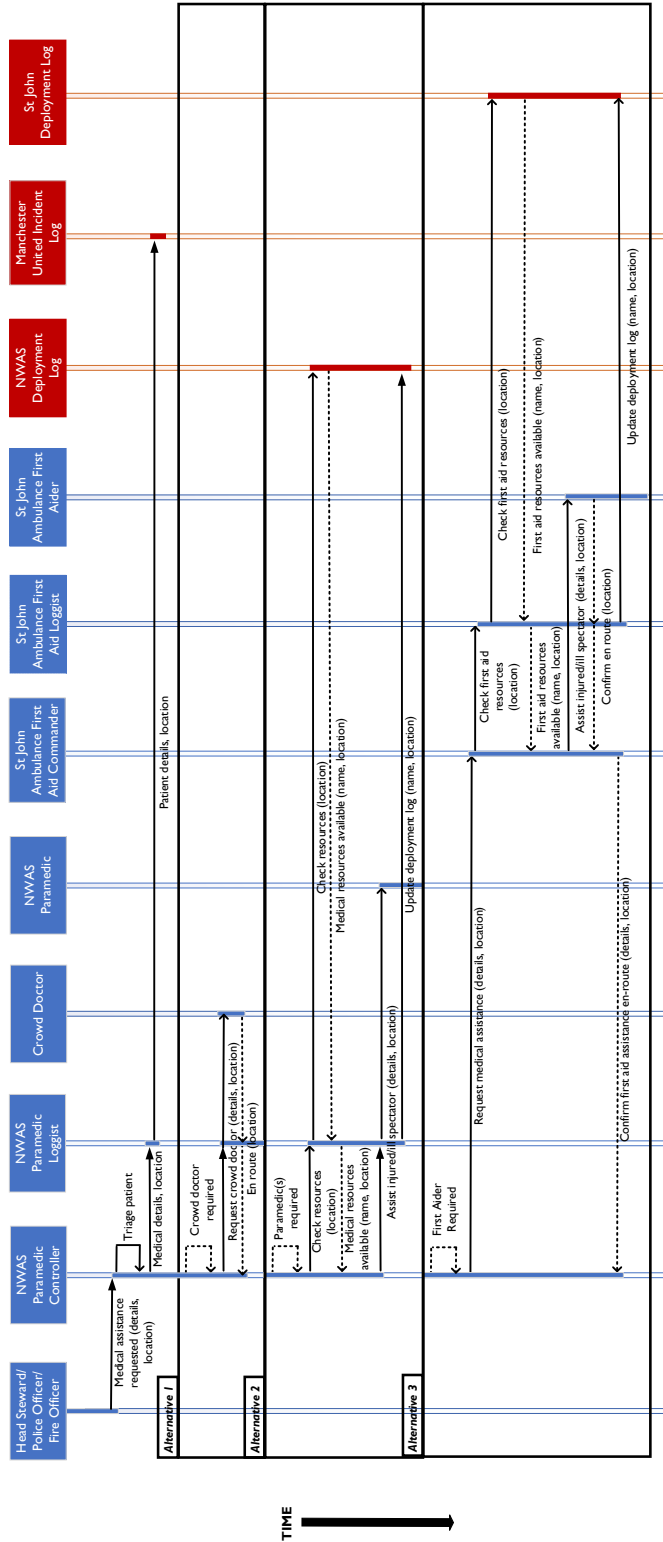
Data Collection Process – Paramedic(s)



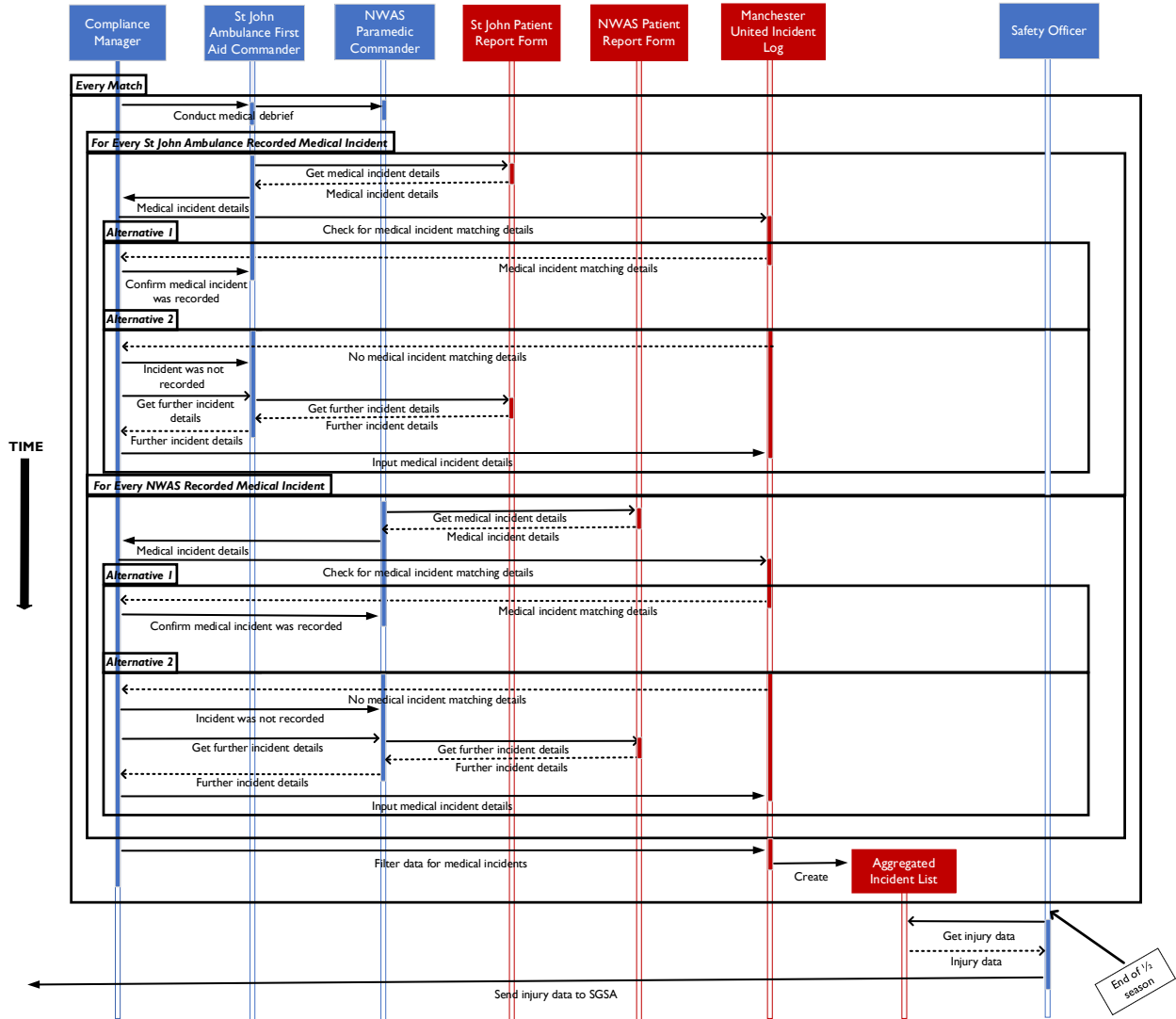
Data Collection Process – Crowd Doctor



Medical Resource Deployment Process



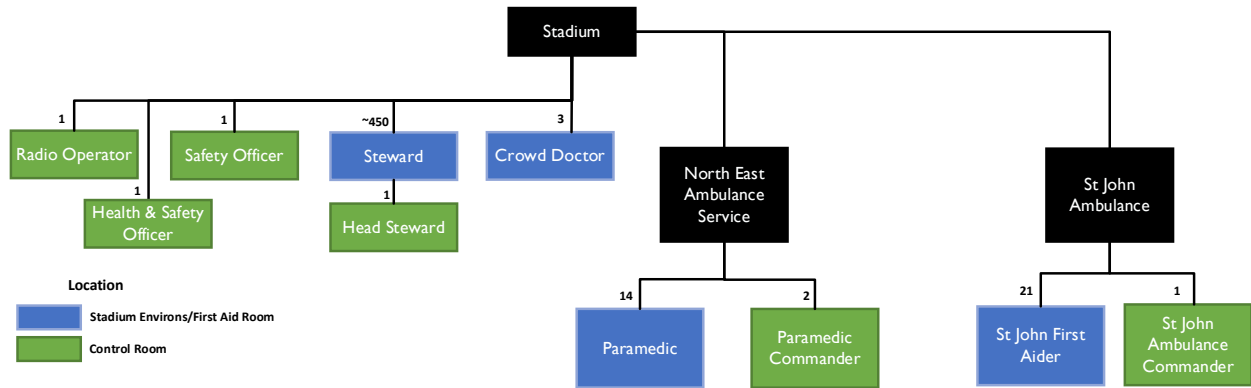
Data Aggregation and Submission to the SGSA



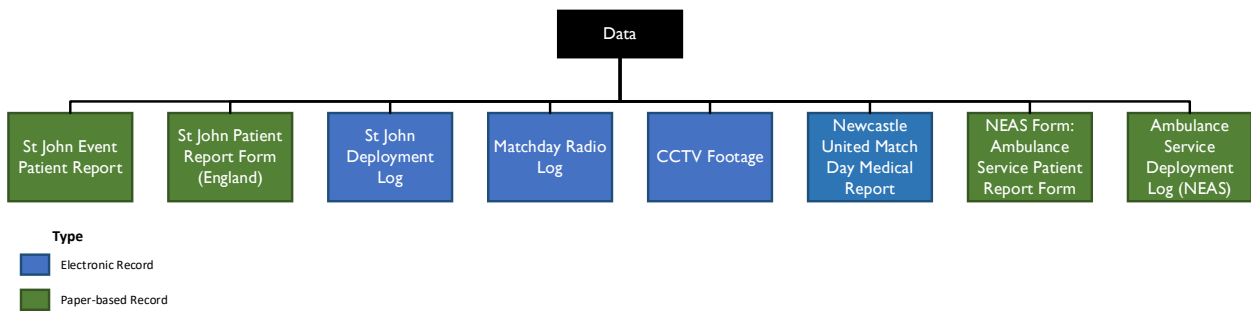


Newcastle United FC

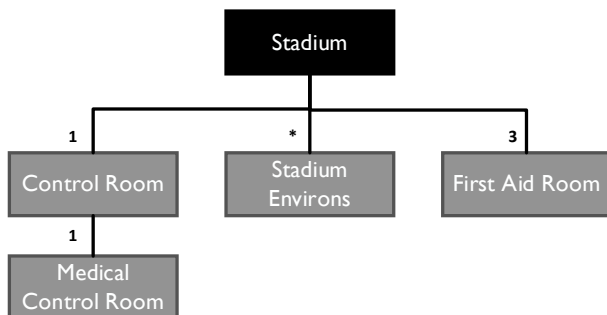
Medical Resources Available



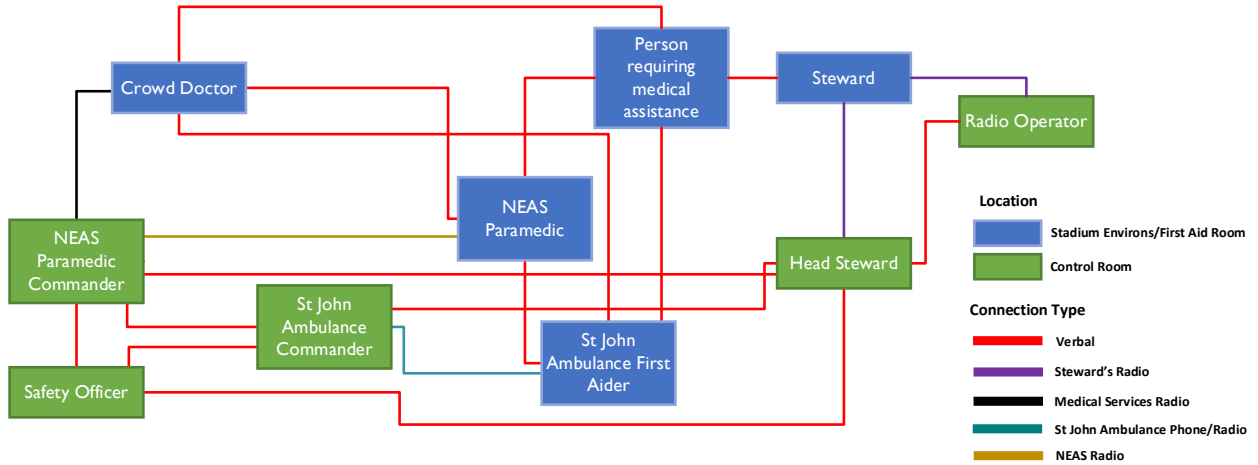
Medical Data Collected



Relevant Locations within Ground

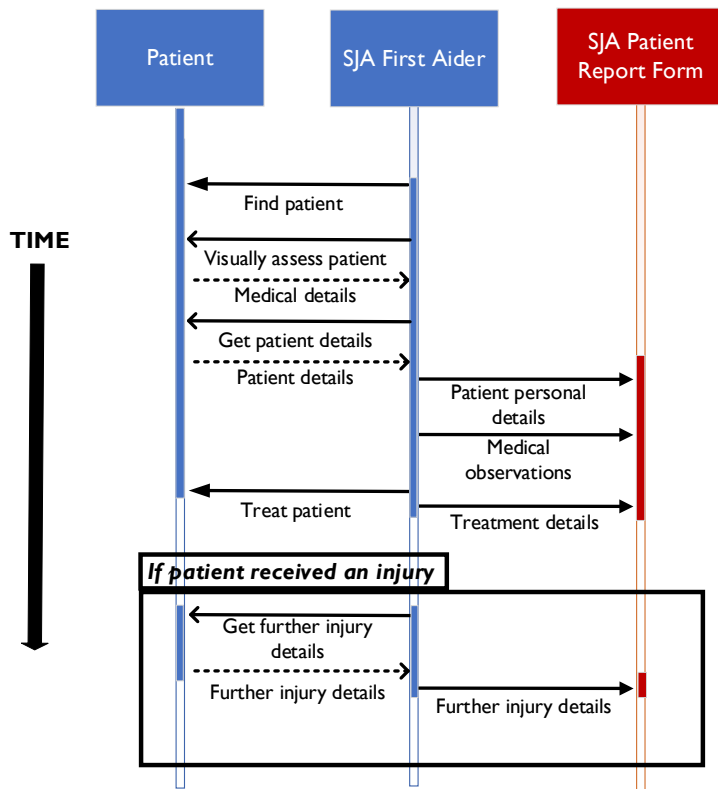


Medical Communication Methods

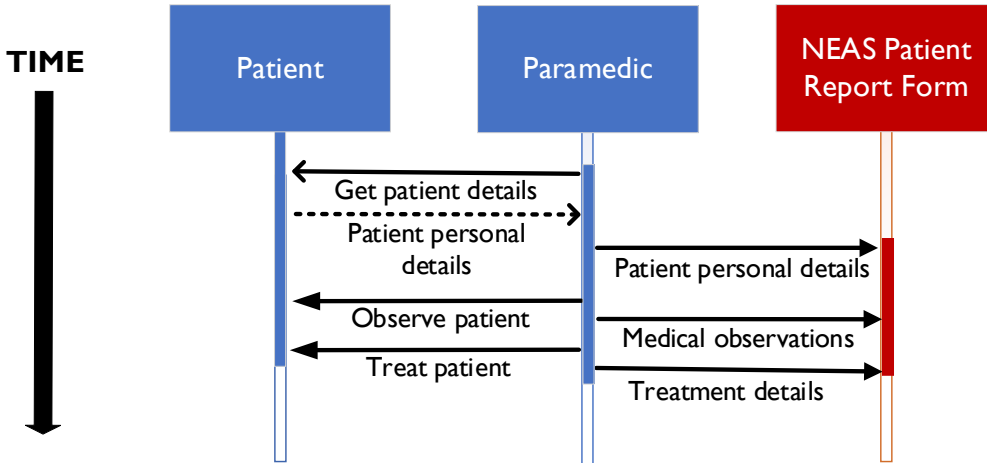


(NB this diagram may not necessarily reflect the true nature of medical communication methods at Newcastle United FC, but due to time constraints the

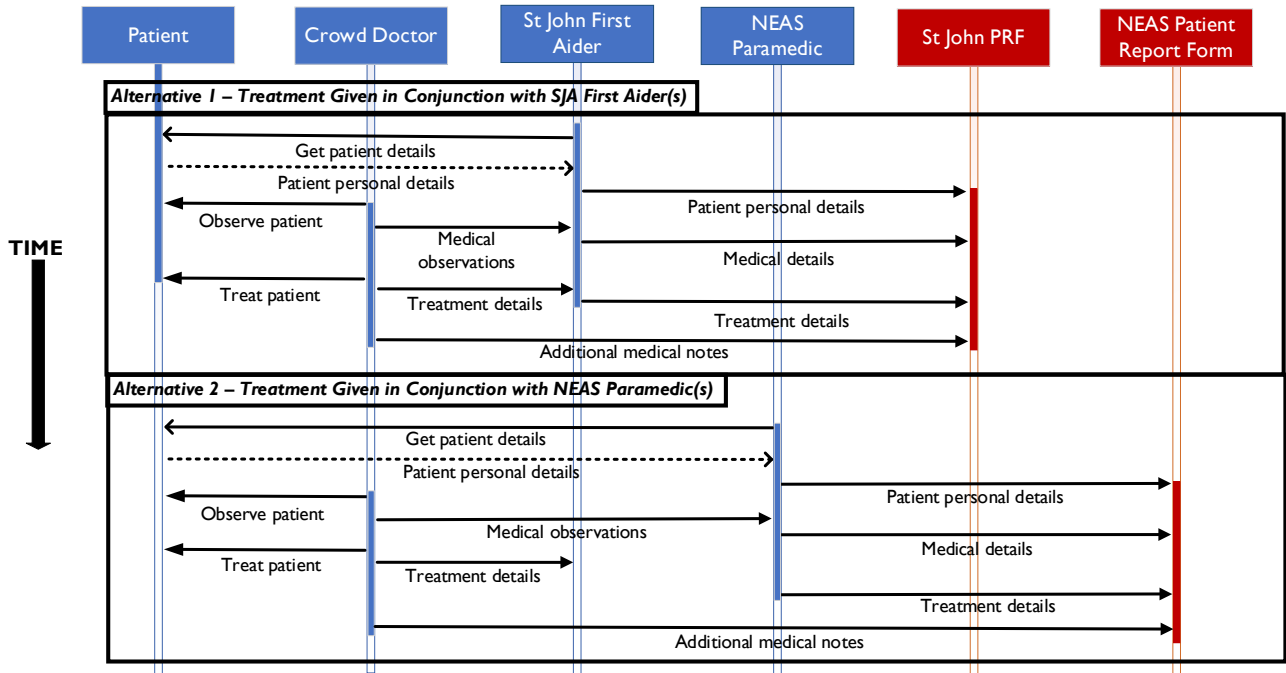
Data Collection Process – First Aider(s)



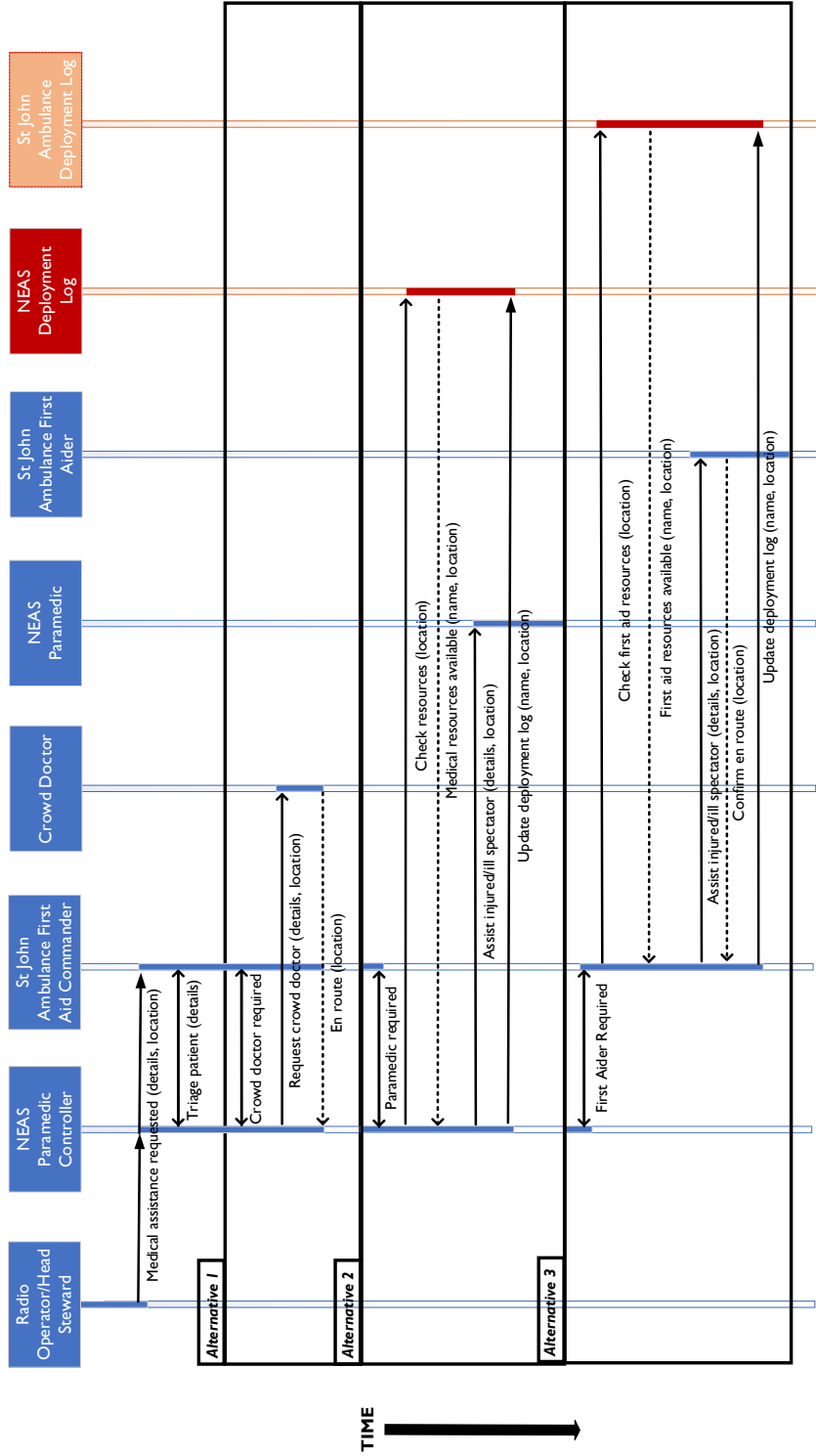
Data Collection Process – Paramedic(s)



Data Collection Process – Crowd Doctor



Medical Resource Deployment Process



Data Aggregation and Submission to the SGSA

